WESTERN
Edition

CANNER

PACKER

CANNED • DRY • FROZEN • GLASS

UNIV MICROFILMS INC
313 FIRST STREET
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08 W TC
SAMPLE COPY RATE

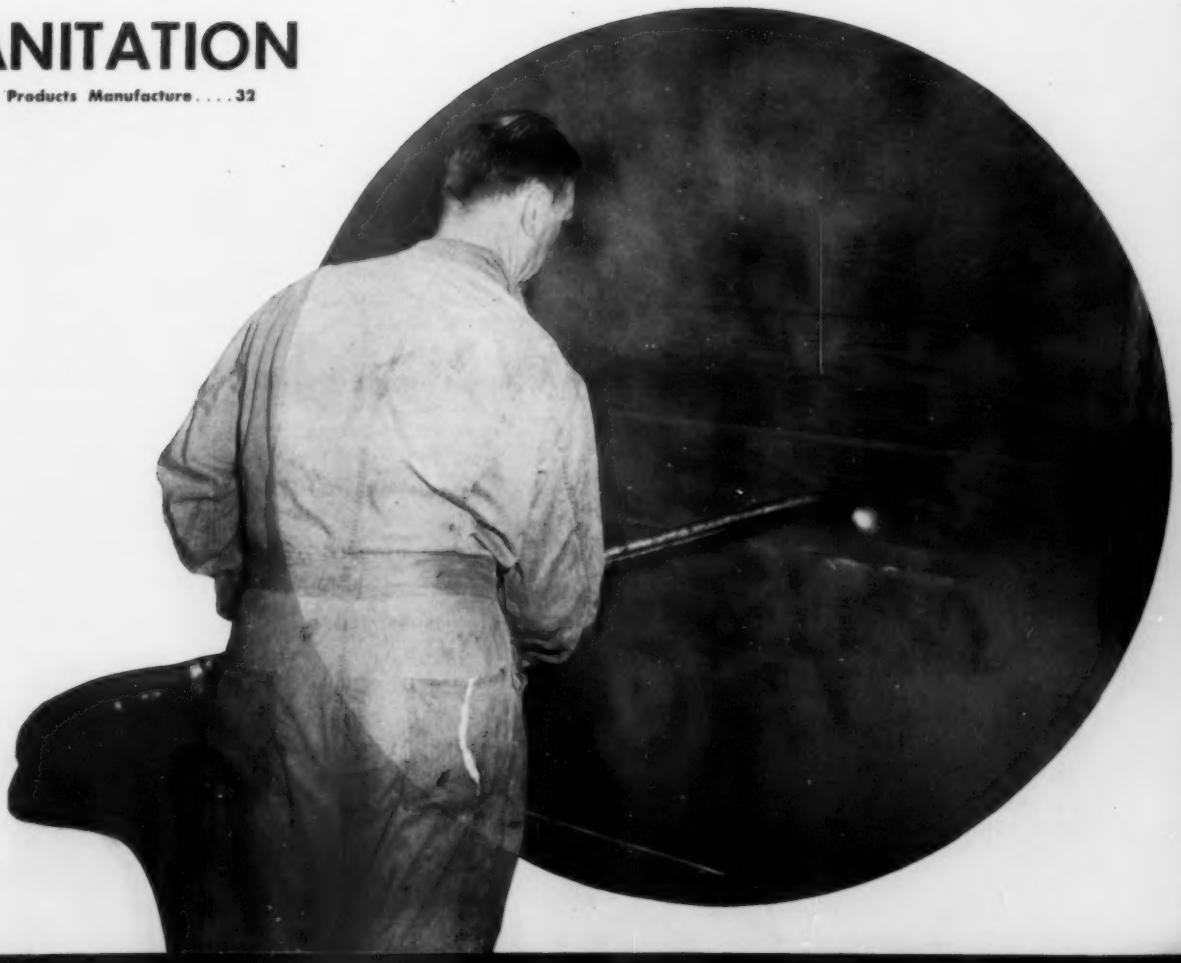
AUGUST 1961

Florida packer guards concentrate quality with nitrogen 23

California beet sugar plant increases capacity with "half a plant" 28

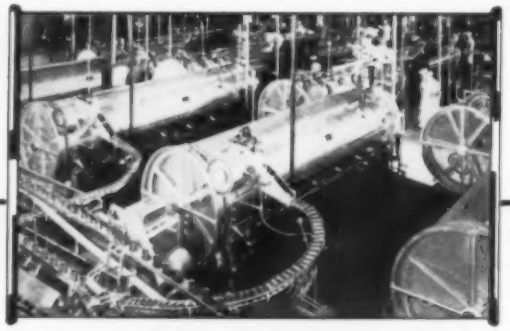
SANITATION

in Food Products Manufacture 32



OVER 500,000 CANS PER DAY *

SCIENTIFICALLY AND AUTOMATICALLY PROCESSED TO PERFECTION . . . . . ARE YOURS?



* A single FMC "Sterilmatic"* Continuous Pressure Cooker and Cooler Line, for example, handles 360 No. 303 cans of brine corn per minute – sterilizing and cooking by the "in-can" method with safety and uniformity. Cans are transferred automatically to the pressure cooling shell and discharged onto the take-away conveyor at the rate of more than 500,000 cans per 24-hour peak season day.

Processors who have replaced old-fashioned batch retorts with FMC "Sterilmatic" Continuous Pressure Cooker and Cooler Lines, have practically eliminated the costly dangers of spoilage or contamination caused by incorrect retort operation, faulty equipment, improper piping, improper venting and timing procedures. With FMC "Sterilmatic," processors are virtually assured of a perfectly processed pack – every time.

WHY FMC "STERILMATIC" COULD BRIGHTEN YOUR PROFIT PICTURE

CONSTANT QUALITY – The controlled agitation process assures that products will be cooked and cooled with absolute uniformity to pre-determined quality standards.

COMPLETE STERILIZATION – "In-can" cooking method means that contents and containers are sterilized simultaneously – at temperatures up to 275° F. The high-temperature, short-time processing of FMC "Sterilmatic" Lines preserves the natural color, flavor, texture and nutrients of the product.

POSITIVE CAN HANDLING – Cans are positively controlled throughout. Can denting, a common problem in retort operations, is practically eliminated.

FASTER PROCESSING – Induced convection heating through agitation increases the rate of heat penetration, resulting in substantial reductions of over-all processing time. Conversely, the same principle applies in the cooling process.

LOWER OPERATING COSTS – The "One-Man Cook Room" is a reality with FMC "Sterilmatic" Lines. The absence of repeated venting procedures saves up to 50% in steam. Controlled counterflow cooling of cans keeps water consumption to a minimum.

For more than 35 years, FMC "Sterilmatic" Continuous Pressure Cooker and Cooler Lines have been serving the food processing industry, providing faster, safer processing and money-saving benefits for satisfied users. FMC is ready to give you – without obligation on your part – proven facts, figures and plans that could lead you to greater profit possibilities. Why not contact us today?

Dedicated to serving the food industries through better equipment for better food products

*Trade Mark — Reg. U. S. Pat. Off.

Putting Ideas to Work

fmc

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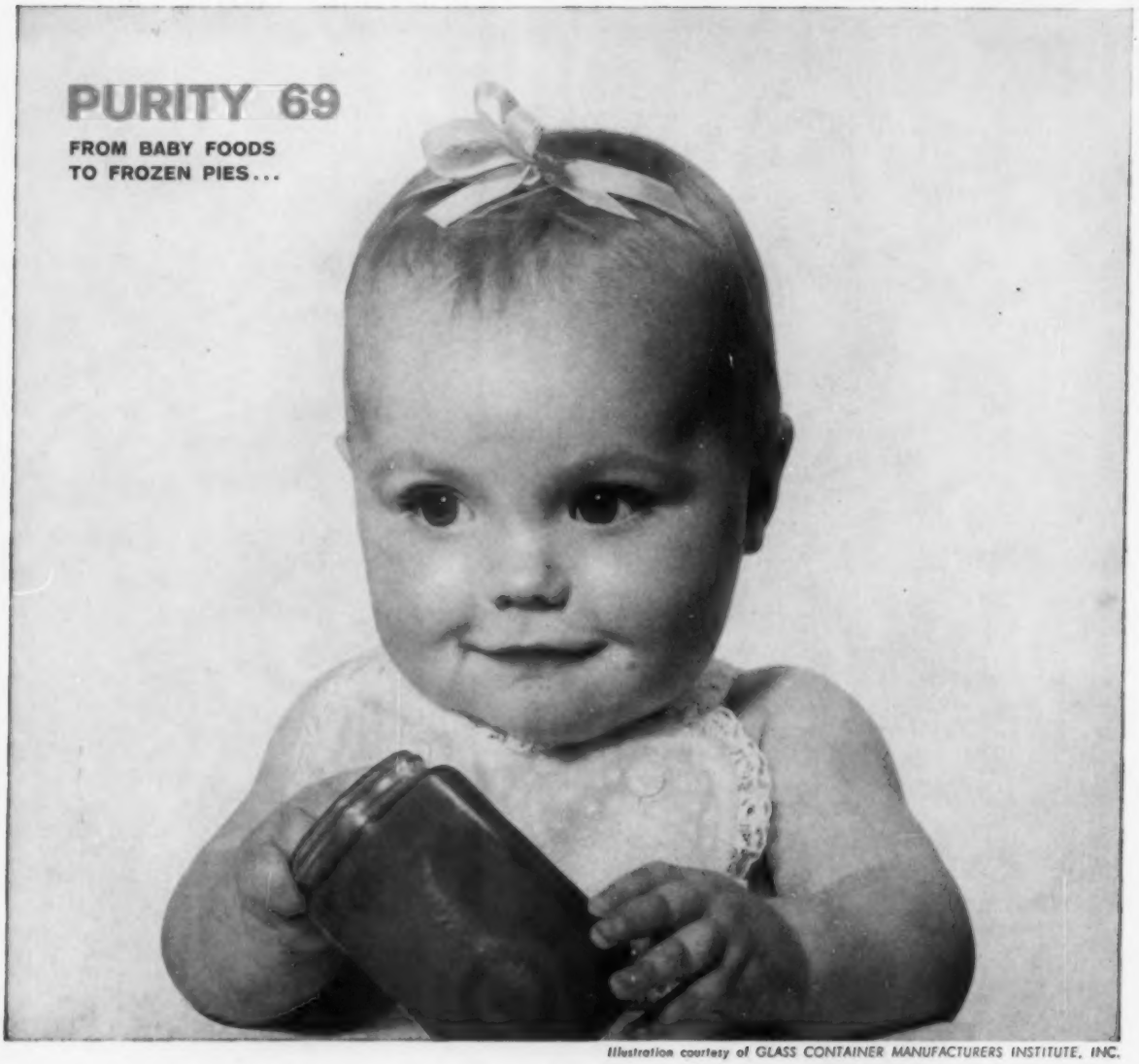

Illustration courtesy of GLASS CONTAINER MANUFACTURERS INSTITUTE, INC.

"FRESH FOOD LOOK" after months of storage

PURITY 69 prolongs storage and shelf life far beyond normal requirements! Stabilizes fruit fillings over a year at refrigerator temperatures while other specialties break down after a week or two. Withstands as many as 40 freeze-thaw cycles while other specialties weep and cause texture changes after two to five "freeze-thaws".

PURITY 69 also offers superb gourmet qualities in taste, texture and clarity. A simple taste-color comparison shows the difference.

PURITY 69 should be evaluated wherever smooth heavy-bodied texture, lack of cereal taste and exceptional shelf-life are desired. Suggested for all types of frozen specialties, canned and jarred foods, canned pie fillings, fruit desserts. Write for information.

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Western Edition

CANNER PACKER

volume 130, number 8 **AUGUST 1961**

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CANNER/PACKER is published monthly with two issues in September by **Triad Publishing Co.**, 59 East Monroe St., Chicago 3, Ill. Telephone: FInancial 6-7788.

Address all subscriptions and payments thereof, changes of subscription address, Forms 3579 and other subscription correspondence to Triad Publishing Co., 500 Howard St., San Francisco 5, Calif.

Second class postage paid at Chicago, Ill. and at additional mailing offices.

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Subscription rate: U.S. and possessions, Canada, $5.00 per year, $8.00 for two years, $10.00 for three years. Other countries, $10.00 per year, $16.00 for two years, $20.00 for three years. Single copies 75c each, except annual Yearbook number at $2.00 each. Copies of issues prior to current year, if available, $1.00 each.

Address all display and classified advertising correspondence, orders and payments thereof to CANNER/PACKER, 59 East Monroe St., Chicago 3, Illinois. Advertising plates, cuts and inserts should be shipped to CANNER/PACKER, c/o Gibbs-Inman Printing Co., 817 West Market St., Louisville 2, Ky.

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COVER: A jet of steam from a steam gun, with or without a detergent, is an effective tool in the sanitation program of a food plant. Good sanitation in all phases of food products manufacture is discussed in the 23rd article in the Processing Technology Handbook series. Page 32.

SANITATION
in Food Products
Manufacture

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Minute Maid process used in three Florida plants strips oxygen from cutback juice and protects flavor.

Glass Packing Sauces 27
Phipps Products Co., Kansas City, Kansas, uses modern techniques to pack oldstyle flavors.

50% More Sugar Production for a Fraction of the Cost 28
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In Coming Issues: *A mid-West packer freeze-dries meat products . . . Modern chicken cannery in the South is part of a fast-growing organization . . . Pennsylvania packer has new techniques in labeling.*

COTTAGE CHEESE SALAD: A favorite peach
and cottage cheese salad becomes "Crest
O' Dew" when topped with Wishbone French
Dressing.
FROZEN SALAD: Clean and cut salad greens
into large bowl. Be sure they are as dry as
possible. Place in refrigerator and chill crisp.
Remove salad from refrigerator just before
serving. Place in individual salad bowls
and pour Wishbone De-Luxe French Dress-
ing on each serving.
Also enjoy Wishbone
Italian, Cheese and
Roquefort Dressings.

The way to make a salad is "How to make a sale!"

So, the point to remember is, just provide the consumer that extra touch of convenience by using the merchandising advantages of front and back labeling.

With the WORLD Super C.M. Labeler, you can apply . . . two . . . three . . . or more labels simultaneously at speeds compatible with your packaging lines. Ask your WORLD Sales Engineer for all the "how" benefits offered by the WORLD Super C.M.

Good labeling sells!

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What can lemon juice do for mayonnaise?

Exchange Lemon Juice, blended with vinegar, produces higher active acidity in the water phase (and lower in the oil phase) without excessive acid odor. It extends shelf life by improving emulsion stability and reducing tendency to go rancid. Constituents in lemon juice will tie-up metallic ions (such as copper and iron) which attack fatty oils of the emulsion. Of course, lemon juice improves flavor and adds a saleable distinction to your label.

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Lemon juice produces a pleasing, well-balanced tart flavor and blends well with all fruit juices. Besides being a flavor-enhancer, it is nature's finest anti-oxidant, doing the job where other chemical anti-oxidants fail. The natural acids (citric and ascorbic) combine synergistically with other natural reductants in lemon juice to increase their anti-oxidant properties.

For your product?

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_____ *How can lemon juice help?*

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STATE _____

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In the food field, Canco containers do what they are supposed to do . . . best! Behind every Canco success story are the experts who made it possible—Canco's aggressive team of research, manufacturing and marketing experts . . . the most experienced group in the container industry. Their knowledge of food processing and consumer needs has resulted in the leading packages of today and assures you that the great containers to come will come from Canco.

To help boost your profits, put the Canco team to work on your packaging problems.

GREAT CONTAINER IDEAS COME FROM CANCO

CANCO DIVISION

AMERICAN CAN COMPANY

WHAT DO YOU DO TO YOUR PRODUCT?

DO YOU
CRUSH IT
IN A
MEAT GRINDER?

DO YOU
SMASH IT
IN A
HAMMER MILL?

some people don't, you know,

some people cut their product into little dices.

PICKLES for the meat industry are now cut into ¼" or ⅜" cubes.

PICKLE RELISH of high quality is now cut into ⅛"cubes or pieces of ⅛" x ⅛" x ¼".

CHEESE is now being cut into little and big dices. Roquefort cheese is easily diced at a temperature of 10° F.

MEAT with little fibre content such as bologna is cut into small dices for sandwich spreads and other products.

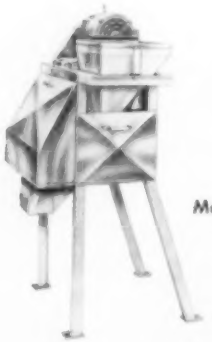
CHERRIES for ice cream dip or other purposes, are cut into little dices.

ALL KINDS OF FRUIT are cut into various small dice sizes for use in numerous products.

NUMEROUS PRODUCTS are now also being cut into julienne strips or thin slices with the "RA".

All of this is accomplished with the Urschel Model "RA" at capacities of up to 10,000 pounds per hour.

We'll be glad to test *your* product in our modern product cutting research kitchen. Write us today.



Model "RA" Dicer

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Designers and manufacturers of precision, high speed cutting equipment for food products.

CANNER PACKER / BUSINESS NEWS LETTER
totally dedicated to serving canned, dry, frozen, glassed food processors

August, 1961

The administration farm bill appears defeated at this writing, and the proposed establishment of a cabinet post to defend the consumer against the businessman seems to be making little headway. But watch for further efforts on the part of the more socialistic of our citizens to renew the attack on both. Some of the comments made in connection with the June 28-30 hearings of the Senate Judiciary Antitrust Subcommittee on packaging and labeling, for example, show that there are many well-intentioned people who still feel that the major aim of processed food packers is to defraud Mrs. Housewife by misleading packaging and false product descriptions.

Thin tinplate will eventually account for 80% of the cans made by American Can Co., according to a statement attributed to Board Chairman William L. Stolk. In a Metal Markets report, Mr. Stolk is quoted as saying that Canco is using all the thin plate it can get, and that this plate is giving aluminum a run for its money in the citrus products field.

Expenditures for capital additions by General Foods Corp. continue to move upward, as do those of all major processed food packers. GF's annual report for fiscal 1961 shows that expenditures in the year just past totaled $39.9 millions, up 15% from the $34.6 millions of the season before.

Changing patterns in production and distribution are apparent in America's milk industry. On the production side, the number of dairy farms has dropped in the last 30 years from nearly five million to well below two million, but the number of cows per farm has doubled, and milk production per cow is up 50%. In distribution, milk marketed in fluid form shows little change, the milk canning industry continues to decline in volume, and the dry milk business shows regular gains. Latest data from Am. Dry Milk Institute show increases in both retail and manufacturing sales of the important dry products.

Foreign trade continues to be an important factor in U. S. processed foods. As an editorial in Canner/Packer for August points out, packers profit from American exports, but are concerned over competition from imports. And, as data on the same issues's Crops/Packs/Markets/Prices section show, some products are gaining in exports, others are losing. The present middle-of-the-road program in regard to encouragement of exports and regulation of imports seems to be about as good a plan as the circumstances will permit.

Workers who start the day with an adequate breakfast do significantly more work than those who do not have such a start, reports an article in Jnl. of Am. Dietetic Assn. The basic breakfast which produced this extra productivity in the tests reported on provides opportunity for more processed food sales, for it included fruit, breakfast cereals, milk, bread and a spread.

A liquid food that "can be made synthetically out of the air" is the newest competitor to the processed food business, according to Dr. Milton Winitz of Natl. Cancer Institute. Speaking at a recent three-day international conference on free amino acids, Dr. Winitz describes his discovery, which he calls Diet 116, as a tea-colored liquid which contains 10 essential amino acids, eight more non-essential protein elements, and 27 additional components which give all necessary carbohydrates, vitamins, minerals, and fats. About a quart a day of a 50% solution provides all the calories and nutrients required by an average person, Dr. Winitz is said to claim.

Beans or berries, corn or cherries...

whatever you package...

Continental

1 Before you pack!

Continental's research goes to work for you in the field and its modern laboratories seeking new and better means of canning.

helps you all the way!

2 When you pack!

On the scene Continental analyzes immediate and particular problems, and finds the solution that serves you best.

3 After you pack!

Continental serves you right into the marketplace. The Merchandiser Digest adds retail impetus to canned sales every month.

Continental provides a farm-to-kitchen service for food packers across the country. Field experts solve on-the-spot problems of individual growers and canners with scientific skill and imagination, tireless researchers explore and test new and improved methods of processing food, and the famed Continental Merchandiser Digest adds force to canned food selling by bringing important retail hints to over 100,000 supermarkets every month. This total service assures you of the finest container for the food you process, and whatever that food...Continental has the right package for you.

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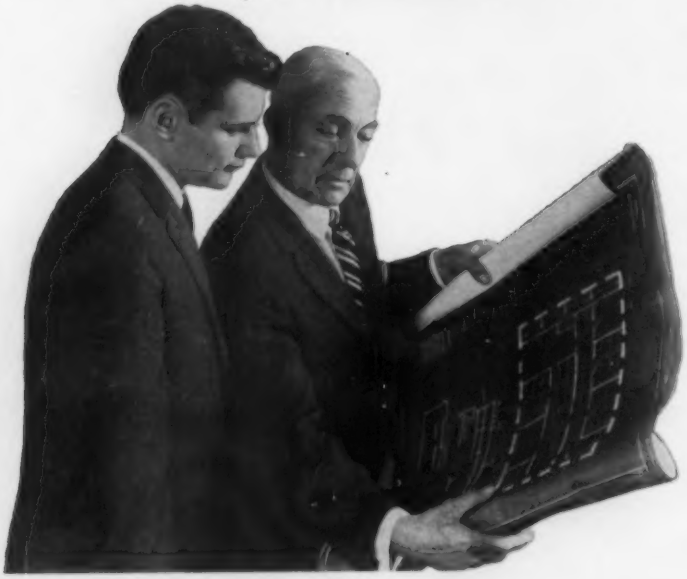
Pacific Division: Russ Building, San Francisco 4 • Overseas Division: 530 Fifth Ave., New York 36 • Canadian Division: 790 Bay St., Toronto 1

Continental has the right *processed food* package for you!

has your insurance program been equally well planned?



Good insurance planning requires a background of training and experience. The right service . . . BEFORE a loss . . . is essential to the prompt and efficient adjustment of a claim. After a loss occurs, it is too late to change policy amounts or conditions applicable to the claim.

CANNERS EXCHANGE suggestions on eliminating hazards . . . on needed policy coverages . . . on practical rate engineering . . . and on fire protective and fire detective devices . . . illustrate the timely and valuable phases of this service.

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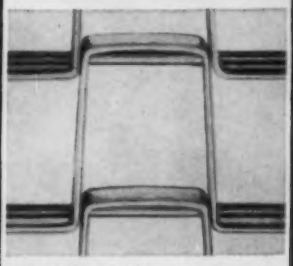
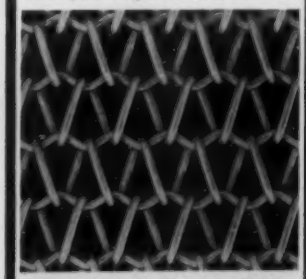


Flat Wire Belting 1″ x 1″ mesh (shown), ½″ x 1″ mesh, ½″ x ½″ (modified) mesh in widths up to 12 feet, any length in carbon steel, galvanized steel or stainless steel. Wire widths and rod diameters can be varied to suit your requirements.



Metal-Mesh Belting Available in special or standard metals or alloys to meet any requirement, custom-built in any weave or mesh size to insure efficient processing. Write for catalog.

Whatever the foods—whatever the processing operation, Cambridge Flat Wire Belts can help you boost production, cut operation costs and maintain high quality standards. Here's how. ■ Large, open mesh allows air or liquids to flow through the belt and around the product for quick, thorough processing. ■ Smooth, flat belt surface carries bottles, cans, cartons, or jars without tripping or spilling, permits easy transfer of products on and off belt. ■ All-metal, anti-corrosive Cambridge Flat Wire Belts permit easy sanitation. ■ Belting can be steam cleaned while in motion to save time. ■ Rugged, quality construction assures longer belt service life, less maintenance, fewer repairs, a minimum of production downtime. ■ Belts may be driven positively with Cambridge sprockets or frictionally with flat-faced pulleys. ■ **For full information on how Cambridge Flat Wire Belts can help you process more high quality foods at less cost to you, call your Cambridge Field Engineer. He's listed in the Yellow Pages under "Belting, Mechanical." Or, write direct for technical data.**

The Cambridge Wire Cloth Co.

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Your Anchor Man knows glass packaging. He brings you all the benefits of Anchor Hocking's half-century of specialization in glass packaging. And he is supported in depth by experienced research, engineering, quality control and service technicians.

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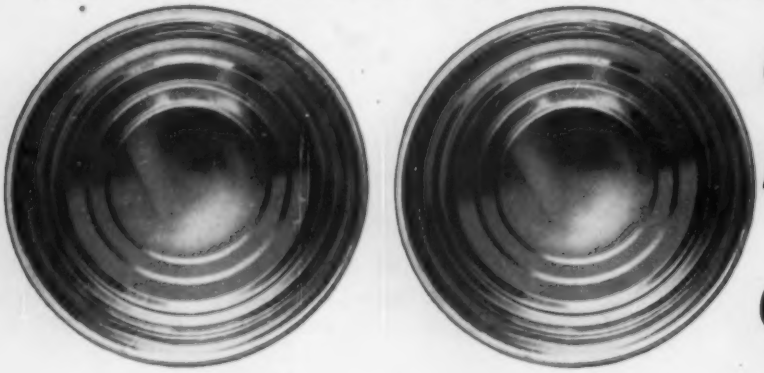
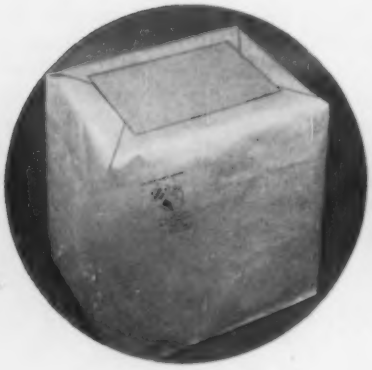
more and more cans are being delivered in



can bags *with* Cromwell ferro-pak



To bring you better cans . . . actually save you money . . . more and more manufacturers are shipping cans in FERRO-PAK CAN BAGS.

Here's why:

1 Cans are kept clean and free of rust—kept ready for use without waste or loss of time.

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Make sure your cans are being shipped to you in can bags treated with CROMWELL FERRO-PAK. You'll save money by reducing can throw-aways.

Manufacturers of: Papers (Impregnated • Coated Laminated • Reinforced Flexible) Bags • Sacks Liners • Covers (Single and multiwall construction, using all types of material to carry, cover or protect all types of products).

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LETTERS FROM READERS

U.S. 1961 Farm Bill

(The July issue carried an editorial highly critical of the Administration's proposed Agricultural Act of 1961. Many aroused citizens also attacked this un-American measure, in part or in whole. As this is written, the measure appears defeated. Meanwhile, readers will be interested in what Congressmen responded to the July editorial, and in what some of them said —Ed.)

I appreciate receiving your opinion of H.R. 6400 (Farm Bill), and I am glad to see that it is very similar to mine. You may rest assured that I will be mindful of your feelings on this measure.

ALBERT H. QUIE — Minnesota, House of Representatives

As you are aware, I have introduced the Farm Bill and am opposed to the Freeman proposal as introduced by Chairman Cooley.

HARLAN HAGEN — California, House of Representatives

I consider H.R. 6400 to be extremely dangerous. It would weaken constitutional processes, place dictatorial power in the hands of the Secretary of Agriculture, and open the way for government control of all commodities. You can count on me to oppose it to the limit of my ability.

PAUL FINDLEY — Illinois, House of Representatives

I appreciate your thoughtfulness in letting me hear from you with reference to the Farm Bill. You may be assured that your views on this subject will be kept in mind.

HERMAN B. TALMADGE—Georgia, United States Senate

I appreciate having your views.

GEORGE D. AIKEN—Vermont, United States Senate

As I have repeatedly stated, changes will be made in the legislation before the bill is reported to the Senate. Hearings have been completed and the Committee will meet in executive session to study these necessary changes.

ALLEN J. ELLENDER—Louisiana, United States Senate

I am opposed to H.R. 6400 and will continue to be unless very radical changes are made. You point out many of the primary objections in your editorial, which I think is an excellent one.

BOB DOLE—Kansas
House of Representatives

I think I can assure you that there will be very material changes in the section of H.R. 6400 to which you refer. I do not, of course, claim to speak for the entire Committee, but I think that most of us want to place such amendments in the bill and I think that it will be done.

W. R. POAGE—Texas
House of Representatives

Our Committee on Agriculture has been meeting almost daily in an effort to agree upon legislation which will be acceptable to the Administration, to Congress and to the country. You may be assured that I am glad to have the benefit of your views and will convey them to other members of the Committee during their deliberations on the bill.

HAROLD D. COOLEY — North Carolina, House of Representatives

Your views on the Administration's general farm legislation—H.R. 6400 —will be helpful to the further consideration of this legislation.

E. C. GATHINGS—Arkansas, House of Representatives

I will keep your particular interests in mind when considering this legislation.

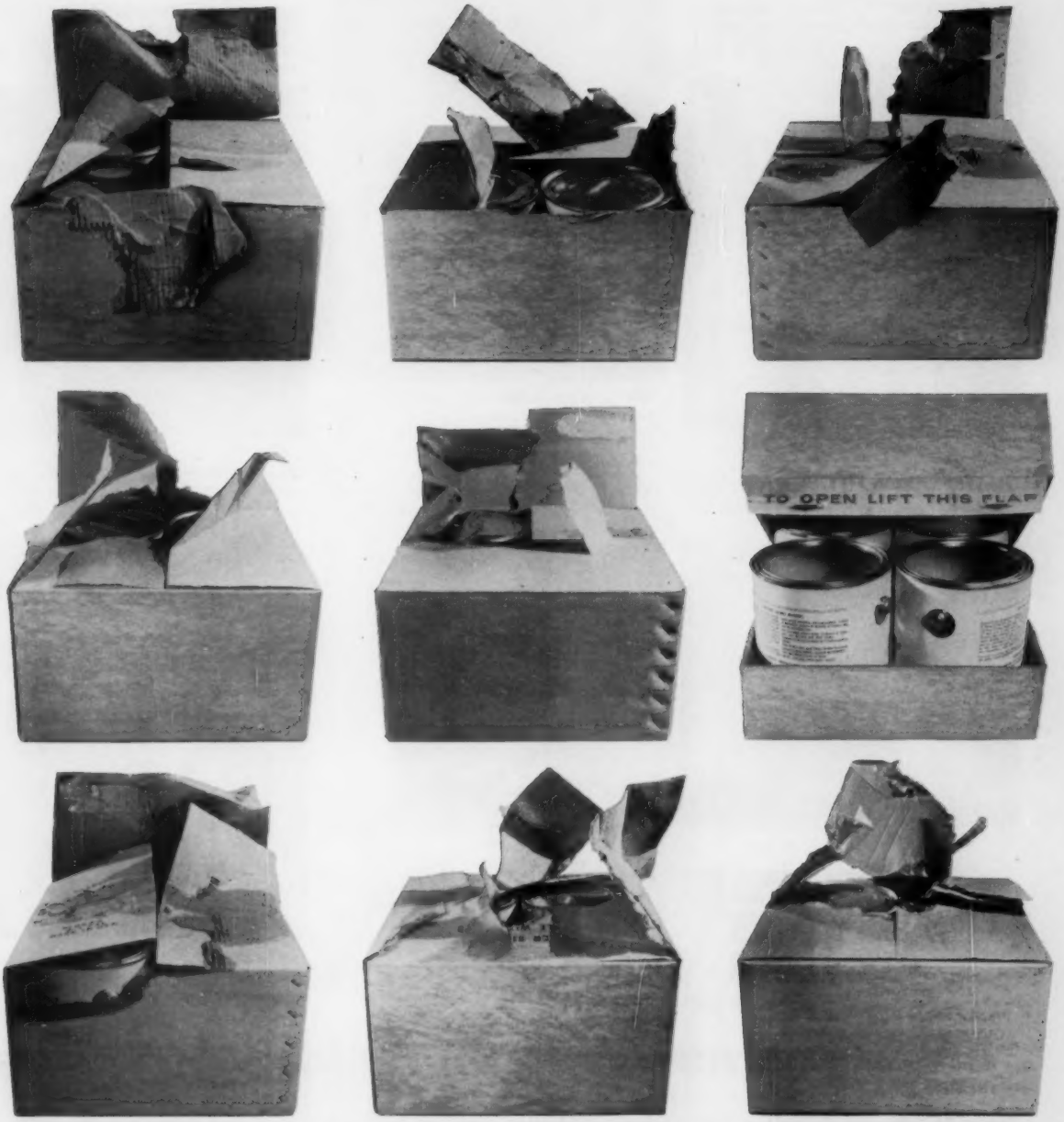
DON L. SHORT — North Dakota, House of Representatives

Thank you for your comment on the Farm bill, and recommending that fruits and vegetables for canning be eliminated from it. We are currently holding extensive hearings on this Act before the Senate Agriculture Committee, so I am very grateful for your statement on this important subject.

WILLIAM PROXMIRE—Wisconsin, United States Senate

Sorry

In the June issue of Canner/Packer, the election of John L. Gushman as president, chief operating officer and director of Anchor Hocking Glass Corp., Lancaster, Ohio, was reported. Unfortunately, Mr. Gushman's name was spelled incorrectly in that issue.



WHICH ONE COMES FROM FIBREBOARD?

Which container was created by a team of industrial specialists—including designers and engineers, salesmen and scientists? Which container comes from the company where every major area is covered the same, sensible way: by teams of experts in that specific field? Which container, in short, comes from Fibreboard? Your customers can pick it out—and do.

The container from Fibreboard: MT-Quik, the flip-top shipping case. Just pull the flap; the whole top-half flips open. No more tug-of-wars, knicked fingers, frayed tempers. (And no more digging to remove the contents.) Two sizes hold four or six 1-gallon cans. Shouldn't your containers come from this kind of company, this type of concept? Write Fibreboard Paper Products Corporation, 475 Brannan Street, San Francisco. (Also New York, Chicago, Los Angeles, other major cities.)

Peach twig borer, oriental fruit moth and other late-brood peach insects are easy to control with SEVIN applied up to the day before picking.

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INSECTICIDE

gives you new help on residue problems

Now SEVIN insecticide provides economical, long-lasting insect control for your processing crops without building up undesirable residue levels. Your growers can use SEVIN throughout the season, and close to harvest for insects that attack crops as they reach the picking stage.

SEVIN can be applied the day of harvest on fresh market sweet corn, beans, cucumbers, tomatoes, peppers and grapes; the day before harvest on peaches, apples, pears, cherries, plums, prunes and strawberries.

Canning corn fodder, husks and cobs may be fed to livestock without contamination of milk or meat by SEVIN residues. Just follow label directions and allow seven days between last application and harvest.

SEVIN is effective against major insect pests of most processing crops. It controls hard-to-kill pests such as corn earworm and even codling moth larvae that have developed resistance to other insecticides. At new low prices this year, SEVIN is your best insecticide buy. It is available in both spray and dust formulations. When insects attack, it will pay to tell growers to "Sock 'em with SEVIN!"

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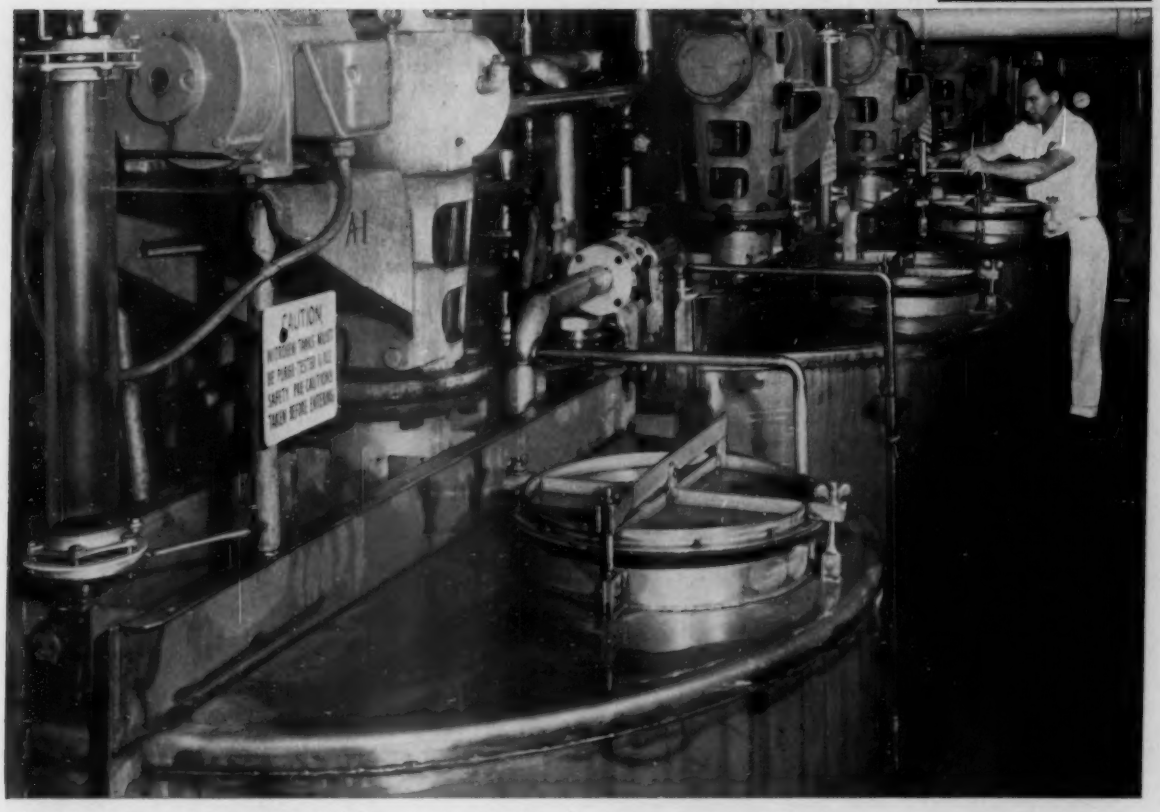

CUTBACK JUICE at a plant of Minute Maid flows to these blending tanks after a nitrogen stripping process credited with playing a major role in conserving flavor of citrus concentrate. Continuous purging with gaseous nitrogen protects juice from oxidation.

How Frozen Citrus Juice Flavor Is Guarded with Aid of Nitrogen

By G. A. KELLY, Process Manager, *Linde Company, Div. of Union Carbide Corp. and* T. W. HARWELL, *Projector Engineer, Union Carbide Development Co.*

A Flavor Retention Process developed by Union Carbide Development Company* to protect the natural flavors in frozen concentrated orange juice is now in commercial operation at three processing plants in Florida operated by Minute Maid.

Key to the new process is the use of nitrogen. This completely inert gas is utilized with specially-designed equipment in two basic ways: to eliminate oxygen from a cutback juice that flows through stripping columns; and to maintain a protective atmosphere for the juice throughout the processing procedure.

Fifteen Years of Study

The process is based on extensive laboratory work conducted by Union Carbide starting in 1946. These investigations used nitrogen to protect the flavor, color, vitamin content and chemical stability or shelf life of food products normally subject to oxidation. Over a period of several years, test packs were made on single strength orange juice, chilled orange juice, and frozen orange juice concentrate. The conclusion was reached that the use of nitrogen would not only protect the original full fresh flavor of the juice, but would also prevent the development of "cardboard" off-flavor normally attributed to oxidation.

The first step for the protection of flavor components was to develop a technique for removing dissolved and occluded oxygen from the juice immediately after extraction without removing or destroying volatile flavors.

Various injection and stripping devices such as bubblers, porous discs and frits in the bottom of tanks were investigated using nitrogen and other inert gases. Spargers and other injectors were installed in pipe lines. Stripping columns using porous discs were designed and used. Some of these earlier types of equipment are still being used in the production of fruit

* U. S. Patent 2,911,308

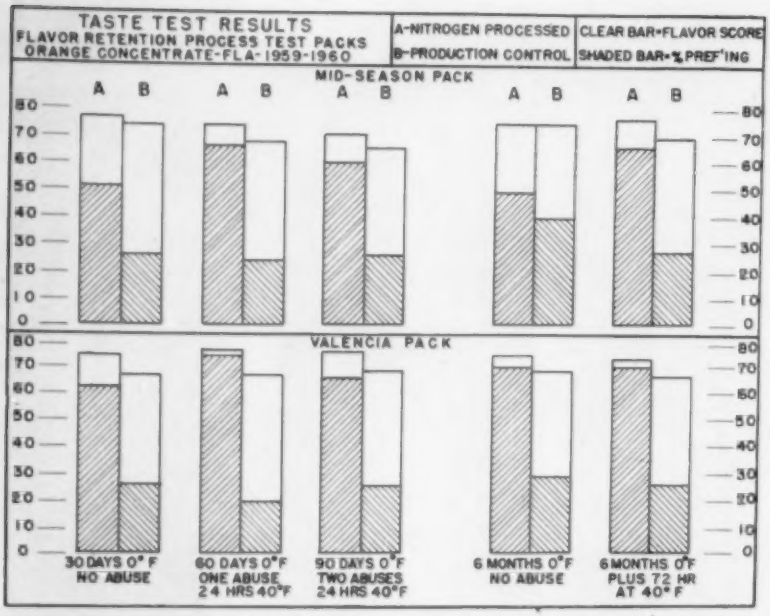

CHART SHOWS preference of taste panels for nitrogen-processed orange juice. Tests were conducted on 17 packs from eight orange juice concentrate plants during the 1959-60 processing season.

juices, edible oils, in the manufacture of mayonnaise and more recently in the fluffing of butter and margarine.

Stripping Proves Successful

It was soon indicated in the laboratory and in commercial operation that a properly and correctly operated stripping column provided the best controlled, the most efficient and the most versatile means of removing dissolved and occluded oxygen from orange juice with a minimum loss of flavor.

Application of the new stripping column and nitrogen process began in 1957 at Minute Maid's three Florida plants at Auburndale, Leesburg, and Plymouth. During its seven-month 1959-60 processing season, Minute Maid used 7,400,000 cu. ft. of nitrogen and produced 15 million gallons of fresh-frozen citrus juice concentrate.

The nitrogen is supplied by liquid trailer trucks from Linde Company's Jacksonville, Fla. plant. It is shipped in compact liquid form to Minute Maid where it is transferred to a specially-designed liquid storage tank having a gaseous equivalent capacity of 72,000 cu. ft. The liquid is automatically converted to gaseous nitrogen and piped to minute Maid use points. The Jacksonville plant is supplied by a larger liquid oxygen-nitrogen plant just completed by Linde at Huntsville, Alabama.

The following production cycle is used by Minute Maid to convert raw oranges into a frozen canned product.

Each plant receives oranges from Minute Maid's groves in trailer-trucks carrying loads up to 45,000 lbs. The fruit is weighed, then subjected to rigid grading tests. Quality fruit is allowed to enter temporary storage bins, and samples of each load are diverted to the Florida state inspection house for additional tests.

Minute Maid Procedure

From these storage bins the oranges begin to move toward the juice plant on conveyors. The fruit is washed under high pressure sprays, scrubbed with nylon brushes and soap, sprayed again, graded once more by inspectors, then passed through a germicide bath, and thoroughly rinsed. During the two gradings any spoiled or split fruit is diverted to peel storage bins, where all discarded fruit and peelings from the juice plant are collected to be processed into cattle feed and citrus molasses. What otherwise would be waste, Minute Maid converts to these uses.

As the quality fruit enters the juice plant, juice extraction machines set to work. The type of machine at Minute Maid's Plymouth plant is manufactured by Citrus Equipment Corp. Other extractors are manufactured by FMC Corp.

Raw Product Separation

The machine at the Plymouth plant cuts the oranges in half and reams out the contents, separating the peels from the orange juice, seeds, and pulp, the latter parts flowing away in a trough. The peels flow back to the storage bins for discarded fruit and peelings mentioned above.

The juice, seeds, and pulp flow to finishers, manufactured by FMC and by Chisholm-Ryder Co. The finisher separates the seeds and large bits of pulp from the juice.

As the juice leaves the finisher, the major portion goes to vacuum concentrators where more than 75% of the water is removed from the juice. All of the oxygen and other dissolved gases are removed from this portion of the juice at the same time. The concentrate then goes into a closed blending tank where it is protected by a blanket of gaseous nitrogen.

Stripping the Cutback

Meanwhile, the remaining portion of the juice—called cutback—has gone to vertical stripping columns. These columns are made of stainless steel and vary in size depending on the plant's capacity. The column installations at Minute Maid's Plymouth plant measure 24 in. in diameter by 20 ft. in height.

The cutback enters the top of these columns and flows out the bottom, while gaseous nitrogen is introduced at the bottom of the columns and bubbles up counter-current through the cutback juice.

The stripping process requires 40 to 50 cu. ft. of nitrogen for 1,000 gallons of juice. This nitrogen flow provides almost 100% removal of dissolved oxygen from the juice with negligible removal of volatile flavor components. In continuous commercial operation, the oxygen content can readily be held at a concentration of 0.1 to 0.3 ppm.

Blending Is Next Step

From the stripping columns the cutback flows under a blanket of nitrogen to the blending tanks, where the cutback juice is blended with a concentrate to form a 42° Brix product.

While in the blending tanks and during the remainder of the processing, the concentrated juice is protected by continuous purging of the head space with gaseous nitrogen. This blanketing process requires between 250 and 400 cu. ft. of nitrogen per 1,000 gallons of concentrate with present methods. The protection prevents the juice from absorbing any air which would lead to oxidation in storage and subsequently to a deterioration in the flavor of the juice.

To insure this protection, Minute Maid uses Beckman F-3 oxygen analyzers at its plants. The Beckman equipment takes samples of recirculated nitrogen in the processing equipment, and monitors oxygen content of the tanks through a visible gauge reading.

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Nature's Acidulant GIVES YOUR FRUIT JUICE BLENDS AN AUTHENTIC, NATURAL TANGINESS!

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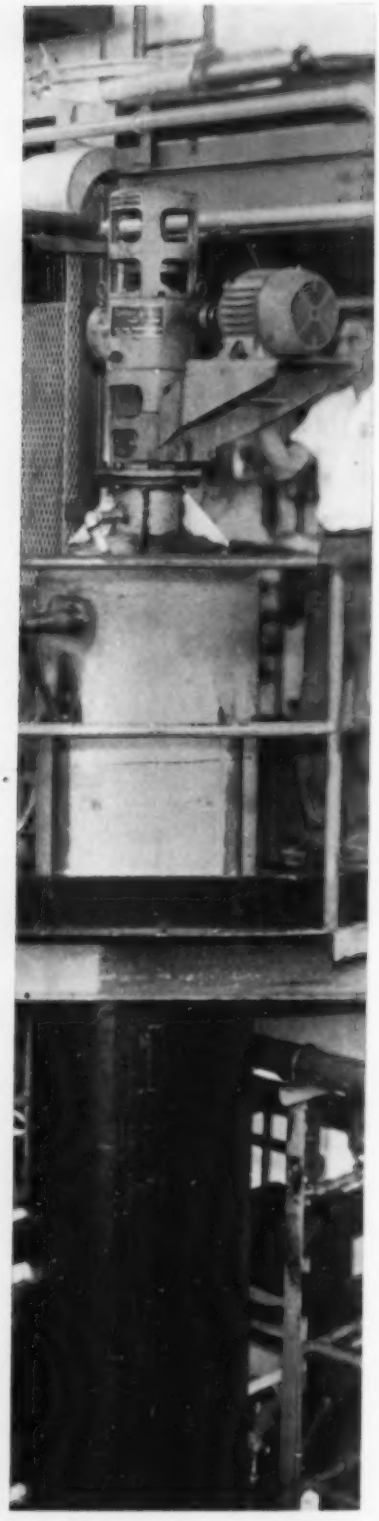


STRIPPING COLUMN at Minute Maid's Plymouth, Fla., plant. Installation stands about 20 ft. high and measures 24 in. in diameter. Gaseous nitrogen flows from the bottom up through the cutback juice, which enters the top of the column.

If the oxygen content should climb above a pre-set tolerance level of 0.5%, as can happen if a leak develops or a tank is opened for cleaning, a recording controller automatically closes a solenoid switch. This switch actuates a valve to expel contaminated nitrogen, while simultaneously feeding fresh nitrogen into the system until the tolerance is restored to 0.5%.

Chilling and Filling

After stripping and blending, the concentrate passes on to Girdler Votator heat exchangers. Here the concentrate is quick-chilled to 18° F., and gains a consistency similar to that of sherbet.

From the Votators, the product moves to fillers, and into hermetically sealed 6 and 12 oz. containers. The packed cans immediately are carried by conveyor belts to a blast freeze tunnel where they pass slowly through a temperature of -30° F., and emerge with their contents solidly frozen. Each can is coded to make it possible for Minute Maid to determine the exact time and place within a half hour of when the concentrate was canned.

In the final step of the overall process the canned concentrate is transported from the tunnel to casing machines, then rushed to a cold storage room set at -10° F. The product is kept there until cleared by Minute Maid's quality control inspection unit. After inspection the cartons are transferred to cold storage warehouses at Auburndale, Leesburg, and Plymouth. Each of these warehouses is capable of holding 2,500,000 cases at zero temperatures. In its concentrated form, orange juice takes up about one-tenth as much space as raw fruit. Minute Maid ships its fresh-frozen orange juice concentrate under refrigeration by motor and rail transportation from the warehouses to retail outlets throughout the country.

Procedure Interests Others

Other processors in Florida have also been studying nitrogen stripping. During the 1959-60 season, seventeen in-plant test packs were made in eight orange juice concentrate plants.

Taste tests on both mid-season and Valencia packs were made after 30 days storage at 0° F. with no abuse and after 60 and 90 days after some abuse at 40° F. and then refreezing. Tests were conducted after six months storage at 0° F. and no abuse, and also after six months at 0° F. with 72 hours of 40° F. at the end of the six months period.

The taste panels averaged from fourteen to fifteen members and were made up of laboratory technicians, engineers, secretaries, and people familiar with orange concentrate.

A scoring and preference rating sheet, very similar to that recommended by the University of Florida Citrus Experiment Station, was used for all taste tests. The tests were completely "blind." Panel members did not know the brand of juice being tested nor the processing methods involved in the production of the samples.

Nitrogen Wins Taste Tests

An accompanying chart shows the composite of average flavor scores and per cent of tasters preferring, based on data from the seventeen test packs. Data from seven panels averaging fourteen members or a total of ninety-eight individual taste tests were used to make each bar in the mid-season graph. Data from ten panels for a total of 140 individual taste tests were used to make up each bar in the Valencia graph. It is interesting to note the similarity of the graphs from the two seasonal packs.

The preference for the completely nitrogen processed product (stripped cutback juice blended under nitrogen and nitrogen headspace in 6 ounce cans) over the production control is quite significant in both series of packs. Although the flavor score difference is less, it also is consistently in favor of the nitrogen protected product for both the mid-season and Valencia tests. The general quality of all packs was good as indicated by the rating scores.

Opportunity for Application

"Union Carbide's flavor retention process using nitrogen to protect the flavor of frozen orange concentrate has been established through three years of successful commercial operation," Union Carbide officials report. "During this entire period, as well as in all test packs conducted during the 1959-60 season, there has not been a single instance of detection of cardboard off flavor in the nitrogen protected concentrate.

"Concentrating plants can be adapted to use the process with few alterations to present equipment. Major changes consist of the installation of a stripping column, a nitrogen recycling system, instrumentation, the enclosure of all processing tanks, and the careful maintenance of all pumps, shaft seals and fittings to eliminate gas leaks. The cost for modifying a plant having a capacity of 40-50,000 pounds of evaporation per hour is around $25,000. Process operation cost, including process royalty, cost of nitrogen and amortization of equipment is about two cents per case of 48/6 ounce cans or 1/2 cent per dozen 6 ounce cans of 42° Brix concentrate."

Glass Packing Sauces

Phipps uses modern techniques for oldstyle flavor in Kansas

Old World and Southern condiments are the product of Yankee ingenuity in the glassed foods plant of Phipps Products Co., Kansas City, Kansas.

The tangy zest of Italian cookery seems fully evident in the Phipps' "Old Southern" Italian pizza and spaghetti sauce. And the romantic outdoor cookery of Dixie is duplicated in the firm's barbecue sauce. Yet the formulae for both are the result of experimentation rather than handed-down recipes, and the methods used to produce them represent the newest techniques in assembling delectable foods from many sources.

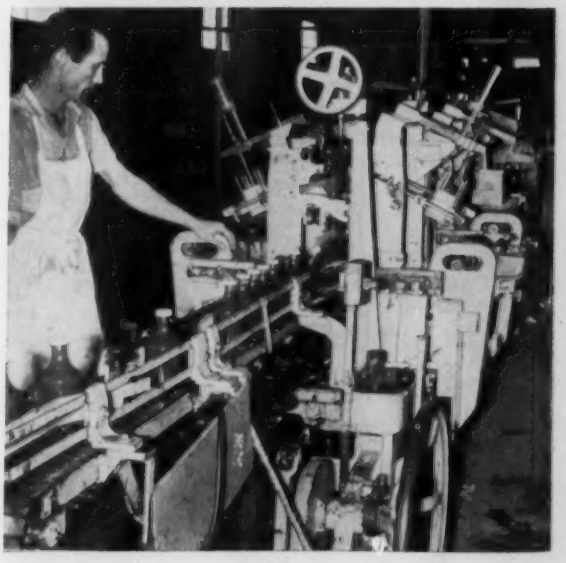
Phipps Products Co. was established ten years ago by Bruce Phipps. At the time, he was operating three retail grocery stores, and his first production was to satisfy their needs. Later he sold to other retailers, and eventually the volume grew to the point where he decided to give up merchandising and concentrate upon production.

As time passed, it became necessary to streamline production methods, to standardize ingredients, to use bulk receiving and handling procedures. Three aspects of these modern techniques are shown in the accompanying pictures—and the company's two products are seen below.

GREAT BOON to Phipps has been development of the Rheem sterile pack operation for pastes and purees. Phipps receives tomato paste from Turlock Co-op and from Thornton Canning Co. in 55-gal. steel drums, and discharges the material into Belding Perma-San cooking tanks (upper view) in a simple but efficient procedure.

FILLING LINE is fully mechanized. Bottles from Kerr and others pass through unscrambler to this Horix rotary filler, and then to the closing unit which applies Bernardin screw caps (middle scene). Empty cases travel along a parallel line to the re-casing station.

APPLICATION of Graphic Arts labels is accomplished on World equipment (bottom), and a World bander then applies tamper-proof Cel-o-Seal bands. The bottles are then cased, after which the cases pass through Chisholm-Ryder (Penn.) case-gluer and sealer.



PHIPPS SAUCES are seen at the side. The barbecue product is made from Speas sweet vinegar, Stange spices, genuine hickory flavoring and tomato paste. The pizza condiment has no hickory flavor, but includes bouillon, 13 herbs and spices, vegetable oil, monosodium glutamate and vegetable protein, plus tomato paste.

TANKS at Holly Sugar Corp. plant in Imperial Valley, Calif., are part of a unique sugarbeet processing system, newly developed which may alter sugar production throughout the nation because it is able to bring...

50% More Sugar Production For a Fraction of the Cost

Raw beet sugar is stored as "thick juice" in tanks half-way through the processing steps

George W. Cossairt, red-eyed and weary from 48 hours of urging a brand-new beet sugar line into production, watched as his factory-and-a-half at Carlton, Calif., finally began to send a stream of beet juice into storage tanks.

Thus on April 15, as the regular plant of the Holly Sugar Corp. continued to slice up its 20 tons of beets an hour from the storage pile, a new sort of sugar operation was born that would:

1. Increase the capacity of the Carlton, Calif., plant by 1/2.
2. Extend the production season of the plant by 50 days.
3. Revise the thinking on how long and how much money would be needed to increase beet sugar production in Southern California by one-third, one-half, or double.
4. Possibly influence the production, storage, concentration ratios of other food processing industries.

The new installation in Carlton consists of a modern conventional plant for slicing beets, washing out the sugar and purifying and concentrating the extract. Then the concentrated extract, called "thick juice" is pumped into five 1,850,000 gallon tanks.

Five Steel Storage Tanks

At the same time that the new unit is producing thick juice for storage, the regular plant is running normally. Beets are sliced, sugar is diffused out, purified, concentrated and run immediately into the sugar side for crystallization. This operation handles around 4,100 tons of beets a day. Added to the regular plant is the capacity of the new beet line of 1,900 tons of beets a day.

Under the hot sun in Southern California, the sugar content of beets deteriorates noticeably after 24 hours. Mid-July temperatures range from 95°-120°F. The systems used in the northern United States, of holding sugarbeets in the open after frost, will not work.

Supply Juice for Late Run

After the regular season ends, around July 31, George Cossairt, plant superintendent will shut down both beet receiving lines, but will run the sugar side for another 50 days on the 9 million gallons of stored juice.

During the season the beets are trucked in, dumped near the plant and conveyed by water to the slicers. The beets, sliced into shoestrings or cossetts, enter Silver Engineering Works, Inc., diffusers. The juice is purified in a Benning type continuous carbonation system in which lime dissolved in water is first introduced to precipitate many of the colloid impurities in the juice, then carbon dioxide is introduced to precipitate calcium ions from the lime still in solution. Another carbonation installation for the new plant is a two tank (primary and secondary) of Holly design.

Juice Has High Brix

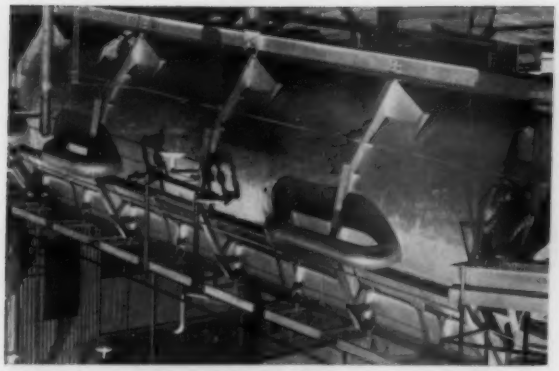
The beet juice diluted by water is concentrated in a Swenson five-effect or six-effect (new plant) evaporator of Holly design.

Normally, juice is concentrated to 65°-68° Brix. In the new system, evaporation is continued to 70°-71° Brix.

The juice is pumped out of the last evaporator at 104°F and into the steel tanks. Each tank with a capacity of 1.85 million gallons is lined with an epoxy resin and is shaped to equalize pressure from a full tank on all parts of the tank walls.

Long Storage Life

For years the method used by the Carlton plant has been known to be theoretically possible. Thick juice is a



NEW SUGAR DIFFUSER for the thick juice line is a Silver DdS Slope with a rated capacity of 2500 tons of beets per day. The original diffuser, the Silver Chain type, had a rated capacity of 3000 tons but has been remodeled to operate up to 3800 to 4000 tons of beets per day.

INSTRUMENTS control many of the beet end processes such as milk of lime system, carbonation, sulphitation, filtration, and evaporation for both the new and the old equipment. George W. Cessairt factory superintendent, left and V. I. Morris, vice president, study control charts.

stable product. When it comes from the evaporator it is sterile and at 71° Brix it is a poor medium for bacterial growth. Under sanitary conditions it can be stored indefinitely without deterioration. The Holly plant was the first commercial application.

At Carlton, the thick juice is pumped into the tank from the bottom. A breather device at the top with an electrostatic precipitron purifies air coming in at the top of the filled tank. An overload line leading from one tank to another allows for expansion of the liquid under the hot Southern California sun.

The thick juice storage is useful in normal operation. When sugar content in beets runs low the thick juice from the tank can be cut back into the line, to raise the Brix of juice coming out too thick to the proper level for crystallization.

When the thick juice is returned for processing, it is heated to 162°F, and filtered. It enters the vacuum pans just as it does during the conventional operation.

The tanks themselves 102 feet in diameter are semi-spheroid in shape, and 40 feet high, are built on a hot mix base similar to a black-top road.

A three boiling system — White, High Raw and Low Raw—is utilized at the plant. "Three Boiling" indicates that all or most of the evaporator thick juice enters the White pans. The original installation included two 1,300 cubic foot (working capacity) La-Feuille crystallizers. Since there was no increase in the sugar end capacity, no new crystallizers were installed.

Holly Sugar Corp., is one of a dozen beet sugar companies in the United States which produces one-sixth of the sugar consumed.

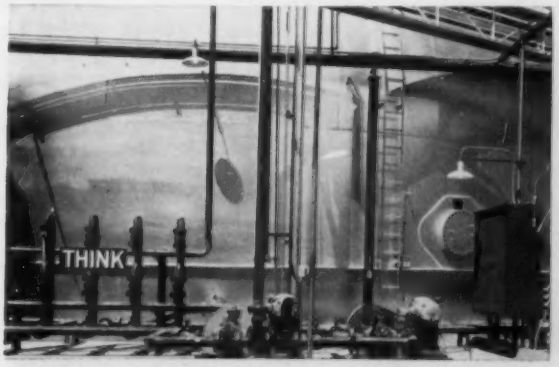
The Carlton plant on the hot, flat, Imperial Valley, near Brawley, 15 miles north of El Centro and 300 miles from anywhere else, produces sugar from beets that average 12% sugar.

Until the new addition was completed, the Carlton plant, built in 1948, was operating near its capacity from 20,000 acres of beets on the irrigated crop land around Brawley.

The beet sugar industry generally has been reluctant to spread its expansion. The Sugar Act of 1948, sets quotas on sugar brought into the United States. In order to give some protection to the United States industry and to keep a sufficient supply of sugar coming in, prices under the Sugar Act are generally higher than world prices. Cuba, before Castro, was assigned an import quota of around 1/3 of the total sugar consumed. But there is a reluctance in the government to scratch off the Cuban quota permanently and commit the production to domestic producers. The possibility of holding the quota open to use to entice the Castro or a subsequent Cuban government away from Soviet influence or to support a sugar industry in other Latin American countries will likely keep the Cuban quota intact, at least until the Sugar Act expires in 1962.

So, the beet sugar industry, expanding slowly has been waiting to get some assurance that a massive increase in production will have a larger quota. In the interim came the Holly Sugar development.

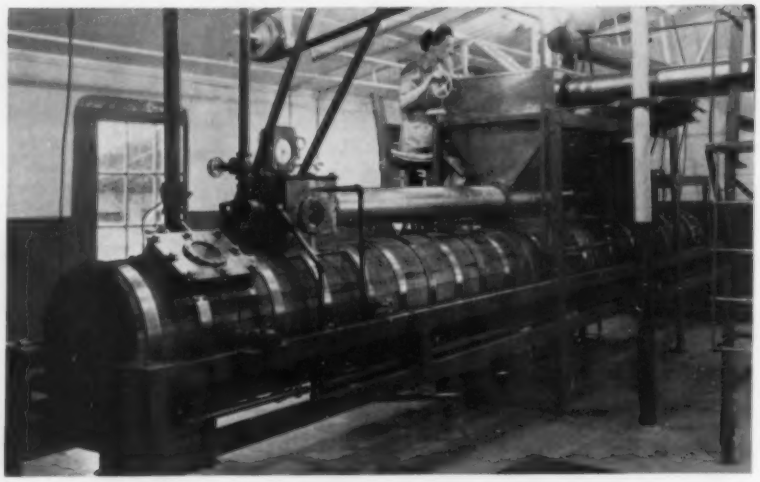
THICK JUICE is checked regularly by T. E. Paxson. When it is returned for processing it will be reheated from its storage temperature of around 95-104° to around 160°. The storage temperature is approximately the July mean temperature of this part of the Imperial Valley.



FLOW FROM TANKS is manually operated at tank site eliminating any danger of juice loss caused by earthquakes or settling. Once manual shift of tank is made, control is then handled by master instrument panel and variable speed pumps. Any two tanks can be pumped at one time.

How to Choose the Best Apples for Sauce

By R. L. LABELLE, R. S. SHALLENBERGER and J. C. MOYER
Dept. of Food Sci. & Technology
N. Y. State Agr. Exper. Station
Cornell University, Geneva, N. Y.



HISTORIC COOKER for applesauce, built about 1928 under the William Smith patent of 1925, and operating efficiently today at the Lyndonville Canning Co. plant in Lyndonville, N. Y. Canners have learned a good deal about applesauce manufacture since this unit was built. The report which follows provides useful data on the affect of variety on sauce yield.

That the varieties processed affect the yield in cases per ton should not be news to any fruit and vegetable processor. Yet many canners of applesauce still pack varieties with low yields, usually blending them with others.

Where this is done with full knowledge of the facts, there may be other factors—quality, local growing conditions, more favorable grower prices, and season-lengthening characteristics—which warrant use of the low-yield types. In many instances, however, it may be that canners are processing these varieties because, in blending them with others, an accurate assessment of the value of each variety may not be available from the firm's records.

In this study, the manner in which variety affects yield is revealed in detail. In summary, it is shown that water-holding capacity is the single most important yield characteristic to be looked for in an apple sauce. Other factors of consequence include fruit size, which influences peeling loss, and harvest date, which affects storage losses.

Water-holding Capacity

Water must be added to sauced apples to adjust the consistency for top quality and acceptance. The normally-acceptable range on the Bostwick consistometer is from 3.0 to 4.0 cm. flow in 10 seconds at 30° C. Within this range, suitable flow may usually be obtained without undesirable separation of excess liquid.

How much water may be added, we suspect, depends on the quantity and nature of the fruit's hydrophyllic colloids (such as pectin and starch), and perhaps also on particle-size distribution. These factors are incompletely understood. But apple varieties differing in these respects have been found to have widely different capacities for added water. The resulting affect on yield can be of major consequence to product cost.

In the experiments conducted at Geneva, N. Y., in 1959, four apple varieties were harvested at intervals of several days, were stored for both short and intermediate ripening periods in common storage, and were prepared as sauce in a pilot plant line featuring a small continuous screw cooker. Sauce consistency was adjusted in each batch to be within the 3.0 to 4.0 limits on the Bostwick instrument.

R. I. Greening Proves Best

R. I. Greening was first in the ability to accept added water. As the accompanying table shows, water equal to 24.0% of the weight of the sauce was added to this variety before it was brought to the desired consistency of 3.3 cm. Rome Beauty was second, with 21.9%, and Wealthy was third, with 19.5%. McIntosh was an unprofitable fourth at 8.3%.

The effect of this factor on sauce yield is shown in the same table. R. I. Greening had a sauce yield equal to 114% of the weight of the fruit as delivered to the peeler. The others ranked in the same order as in per cent of water added—Rome Beauty second with 112%, Wealthy third with 104%, and McIntosh last with 96%.

Yields are best compared at a uniform level of consistency, whereas some variation occurred among the varieties, as the table shows. Correction is easily achieved by noting that 1% water added, based on the final weight of the sauce, increased the Bostwick reading by 0.25 cm. at 150° F., and correspondingly by 0.20 cm. at 30° C. When corrections are made on this basis to bring all four types to the 3.3 cm. level of the R. I. Greening, the corrected yields favor that variety still more.

Size Factor Favors Rome Beauty

Larger fruit reduced peeling loss in the Geneva tests. This has recently

been demonstrated by Lopez and others[2] and is widely recognized.

The Rome Beauty, with a diameter of 2.9 inches on the average, had an average peeling loss of 22.7%. All three of the others averaged 2.7 inches in size, and all lost more weight in the peeling, coring and trimming steps. R. I. Greening was second, McIntosh third and Wealthy last.

Loss of weight in the finishing operation was minor with all four varieties. McIntosh had the best showing here, but the spread was only from 1.2% to 2.0% of the weight of apple before peeling.

Storage Considerations Are Complex

As every canner knows, apples for processing are stored for a variety of reasons. Extension of the season—which results in greater productivity from the plant—is probably the most important. Also significant, however, are such considerations as handling a sudden glut of raw product, accomodating growers with whom business is done, providing stock for blending, and securing stock for fulfilling commitments to customers.

The 1959 Geneva study underlines the fact that some varieties suffer less weight loss in common storage than others. R. I. Greening and Rome Beauty varieties were each stored 36 days in the trials. The Greenings suffered a weight loss of 11.2%, whereas the shrinkage of the Beautys was only 6.1%. Similarly, Wealthys lost 6.1% of their weight in storage during 13 days, while a 15-day storage of McIntosh cost only 4.9% of the weight.

This shrinkage was due mainly to loss of moisture. It is minimized by the short storage times encountered in prompt utilization of varieties which ripen rapidly in storage (Wealthy and McIntosh). Low storage temperatures, such as prevail in common storage after Romes are harvested, also minimize moisture loss.

LARGE APPLES, like these in the Lyndonville plant, tend to reduce peeling losses. But choice of variety also has other results in the output per ton, as this article and accompanying table point out.

Leave Fruit on the Trees Longer

To reduce storage loss, particularly in R. I. Greening, it is suggested that harvesting of fruit destined for common storage be delayed. This is in keeping with improved sauce quality as well, since such an improvement has recently been shown to accompany longer tree-ripening of the fruit.[1]

Finally, we must take into account that the processor is interested in his over-all usage. This is calculated as pounds of fruit actually purchased divided by cases of applesauce produced and is expressed as pounds per case of 24/303 cans.

The per cent yields obtained in this study may be converted to usage by taking account of the known weight loss in storage, and by estimating other losses. Allowing 4% for fruit damage and spoilage in the yard, and 2% for spillage, damaged cans and hold-up of sauce in the equipment, the usage calculated for the four varieties varies from 25.1 to 29.2 lbs. per case. Rome Beauty and R. I. Greenings lead with the lowest usage, followed as before by Wealthy and McIntosh.

Yields of sauce from apples grown at Sodus, New York and processed in Cornell's pilot plant at Geneva, in 1959

	Wealthy	*McIntosh*	*R. I. Greening*	*Rome Beauty*
Mean harvest date	9/10	9/18	9/20	10/17
Days in common storage	13	15	36	36
Mean storage temp., °F.	66	66	59	48
Weight loss in storage, %	6.1	4.9	11.2	6.1
Apple size, inches	2.7	2.7	2.7	2.9
Peels, cores, and trim, %	25.5	24.6	24.2	22.7
Finisher waste, %	1.8	1.2	1.4	2.0
Water added, %	19.5	8.3	24.0	21.9
Sugar added, %	10.0	10.0	9.7	10.4
Sauce yield, %	104	96	114	112
Sauce consistency, Bostwick (cm/10 sec. @ 30°C.)	3.5	3.9	3.3	3.8
Corrected sauce yield, %	103	93	114	109
Usage, lbs./case of 303's	26.5	29.2	25.1	25.1

Data are averages of 16 1¼-bu. lots.

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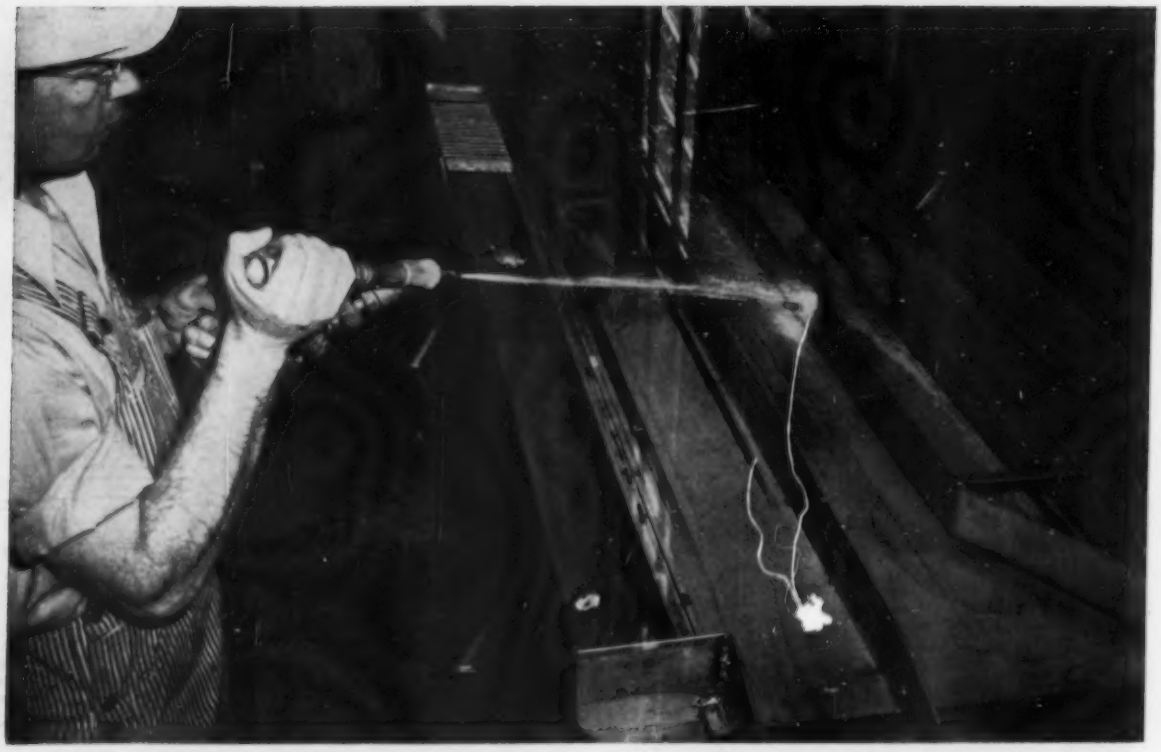

CONVEYOR SYSTEMS need thorough cleaning with jets of water or detergent solution having good pressure. Here a multi-channel belt system, with belt removed, gets careful attention from an employee with high pressure gun.

SANITATION in Food Products Manufacture

By EDWIN S. DOYLE, Sanitarian, *National Canners Association* and ELVERTON B. STARK, Editor *Canner/Packer*

INTRODUCTION

Good sanitation procedures have become a major factor in the success of any firm engaged in the production of canned, dry, frozen, glassed and specialty foods.

To contribute its maximum share to the profits, however, the sanitation program of a plant must be complete and well-organized. The ten commandments of such a plan may be summarized as follows:

1. Management must be thoroughly sold on the value of sanitation, and must give the program wholehearted support.

2. The building layout and construction must exemplify the best in modern sanitation design and practice.

3. Equipment and facilities must be built and installed to create the minimum of sanitation problems and the maximum of ease in clean-up, resulting in the ultimate in economy.

4. There must be a real sanitarian on the job—properly trained, dedicated to his work, endowed with adequate authority to handle the responsibility.

5. Other supervisory personnel must be educated as to the importance of sanitation, and must cooperate in seeing that it becomes the law of the plant.

6. Employees must find the plant an excellent example of good housekeeping, safety practices, individual hygiene.

7. The sanitarian must have adequate sanitation tools and supplies.

8. There must be a carefully worked out, written set of sanitation procedures.

9. The sanitarian must have opportunity to keep fully informed on governmental, industrial and scientific developments of concern to him.

Processing Technology Handbook

This is the twenty-third article in the series carried by Canner/Packer and a predecessor journal, covering the basic tools, techniques and supplies used in processed canned, dry, frozen and glassed food packing.

10. Management, the sanitarian and other supervisory personnel should regularly audit or evaluate conditions and review sanitation procedures and practices.

PART I: WHY MANAGEMENT IS CONCERNED WITH SANITATION

Sanitation is a vital subject to company and plant managers because an adequate program can add materially to the firm's success, while an inadequate one is almost certain to end in failure and disgrace.

This is far more true today than ever before. U. S. Food & Drug Administration has a stronger law to enforce, and a greatly expanded staff to handle the work. As a result, plant shutdowns and seizures of products on sanitation grounds will be increasingly common where good sanitation is not a way of life.

At state and local levels, also, there is increased interest in, and concern for, sanitation, as evidenced by the last several annual meetings of Assn. of Food & Drug Officials of the United States.

People are increasingly sensitive about food, as is shown by the furores raised by consumer groups regarding food additives, and the rash of sensational books and articles along similar lines. Filth in food, or in its production environment, is something today's housewife will not tolerate. Since a production defect rate of 0.1% means that one customer in every thousand can be disappointed and permanently lost, the utmost concern on the part of management is demanded.

On the positive side, adequate sanitation secures better workers, who turn out higher-quality products, do less damage to top-grade raw materials, have better absentee and accident records. And it reduces spoilage losses, permits prompt deliveries, maintains satisfied customers. Good sanitation practices contribute to longer life and fewer repairs for plant equipment.

The more acceptable quality that results pays off in repeat business, better response to advertising and salespromotion, greater resistance to competitive attacks, better opportunity to get a fair price for the merchandise.

PART III: BUILDING LAYOUT AND SANITATION

When a new processed food packing or storage building is to be erected, it should be evident—although the record indicates it is not—that a qualified sanitarian should help develop, and should approve, the plans.

A trained sanitation supervisor can also do a great deal to reduce expensive procedures in existing facilities.

The following are some of the points that will concern the sanitarian, according to James W. Bell:[1]

Outside: There should be no junked equipment piles, lumber stacks, other material that creates rodent and insect harborage, or fire and accident hazards. Regularly cleaned, hard-surfaced roadways and parking areas should serve all shipping and receiving docks, to reduce dust and dirt, and to keep such areas free of mud, spilled produce and other litter. All solid-waste handling faciilties should be surrounded by surfaced areas, and must be well-drained to a sewer, as flies can breed in juice-soaked soil. Facilities should be provided for cleaning all equipment, including vehicles and containers used to haul waste.

Buildings: Properly-graded concrete floors with sufficient drains are essential. Except in meat plants, poultry processing plants, creameries and bakery processing rooms, gutter-type drains with short sections of removable metal gratings are usually recommended. Walls and ceilings must be of smooth construction and have a washable finish. Recesses and ledges should be avoided. Windowsills, concrete guards around posts, locker-tops, etc., should be slanted at 45° angles to prevent accumulations of dirt, pop bottles, rags, other refuse.

Lighting and ventilation: General lighting must be sufficient for both work and clean-up. Special lighting is essential over inspection and trimming belts. Care should be taken that light bulbs and fixtures are safety types when suspended over food tanks, etc. Natural ventilation is sufficient in many instances, if well-located windows are provided, although drafts can also be detrimental to work and employee health. Exhaust fans are required around blanchers, kettles, cookers and similar units, both for employee comfort and protection against mold growth. Air currents should be maintained in a direction opposite to the flow of products in processing. Adequate ventilation is necessary to reduce product, equipment and building deterioration.

Openings: Production areas should be screened against insects and birds, but care must be taken that screens do not aggravate fly and ventilation problems. Raw products should enter the plant, and finished goods go out, by the smallest possible openings. Where large doorways are required, protection with vestibules, air blasts or other techniques should be employed.

PART III: SANITATION CAN BE BUILT INTO EQUIPMENT

Angles instead of curves can be as unattractive in food equipment as in certain other more-publicized spots. Equipment with pockets which catch the product as it passes through, those with areas inaccessible to seeing-feeling-scrubbing-flushing, and those which cannot be easily dismantled should not be tolerated. They will increase build-up of spoilage organisms beyond belief, and can multiply maintenance and clean-up costs many-fold. Since the cost of machinery includes maintenance and cleaning expense, no such equipment is a bargain regardless of original price.

Cleaning-in-place techniques are highly desirable in many operations. For economy and efficiency, the valves, fittings and other parts needed for CIP operations must be engineered into the equipment before installation.

Machinery manufacturers and associations of processors have set up, or are developing, recommendations which greatly improve the sanitation characteristics of production facilities. Packers should secure recommendations from appropriate agencies listed below, and should ask machinery suppliers to incorporate the proper specifications in their designs.

Fruit-vegetable canning: National Canners Assn., 1133-20th St. N.W., Washington 6, D.C. Recommendations are available on horizontal belt conveyors, drum-type blanchers, tomato washers, post-cooling can-handling equipment. Work is being done on pipe lines and valves, empty can washers, fruit washers, belting.

Fruit-vegetable drying: Dried Fruit Assn. of Calif., 478 W. San Carlos St., San Jose, Calif.

Fruit-vegetable freezing: National Assn. of Frozen Food Packers, 919-18th St. N.W., Washington 6, D.C.

Meat processing: National Meat Canners Assn., 59 E. Van Buren St., Chicago 5, Illinois.

Poultry processing: Institute of American Poultry Industries, 59 E. Madison St., Chicago 2, Ill.

Fish canning, freezing: Maine Sardine Packers Assn., 15 Grove St., Augusta, Me.; Calif. Fish Canners Assn., Ferry Bldg., Terminal Island, Calif.; Assn. of Pacific Fisheries, Colman Bldg., Seattle 4, Wash.; Natl. Fisheries Institute, 1614-20th St. N.W., Washington 9, D.C.

Dairy canning and drying: Sanitary Standards Subcommittee, Dairy Industry Committee, Barr Building, Washington 6, D.C.

Spice and condiments packing: American Spice Trade Assn., 82 Wall St., New York 5, N. Y.

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Cereals, bakery mixes: American Assn. of Cereal Chemists, 1955 University Ave., St. Paul 14, Minn.

Vegetable oils, related products: Institute of Shortening & Edible Oils, 1415-19th St. N.W., Washington 6, D.C.; Mayonnaise & Salad Dressing Mfrs. Assn., 333 No. Michigan Ave., Chicago 1, Ill.

Pickles: National Pickle Packers Assn., 202 So. Marion St., Oak Park, Ill.

Preserves: National Preservers Assn., 1346 Connecticut Ave. N.W., Washington 6, D.C.

Sugar, other sweeteners: Sugar Assn., 52 Wall St., New York 5, N. Y.; Corn Industries Research Foundation, 1001 Connecticut Ave. N.W., Washington 6, D.C.

Food cartoning, packaging machines: Packaging Machinery Manufacturers Institute, 60 E. 42nd St., New York, N. Y.

Bakery products: Baking Industry Sanitation Standards Committee, 511-5th Ave., New York 17, N. Y.

General: Assn. of Food & Drug Officials of the United States, c/o Texas Bureau of Food & Drugs, Austin 1, Texas; Institute of Sanitation Management, 855 Ave. of the Americas, New York 1, N. Y.; Can Mfrs. Institute, 821-15th St. N.W., Washington 5, D.C.

The continuing drive for more and more production per day per plant or line tends to increase the quality and contamination hazards generally, and sometimes to curtail seriously the time available for clean-up. Sound design of equipment then becomes even more essential.

A check-list of factors important in the design of food equipment, compiled by a special sanitation committee of National Canners Assn., includes the following:

1. Equipment should be designed for cleaning, safety, and easy repair of mechanical failures.

2. All surfaces and areas should be readily accessible. This means accessible with no tools, or at most with very simple tools, and so that all surfaces and areas can be seen or felt and easily cleaned.

3. No wooden parts should be used.

4. Fabric or belting with exposed absorbent fabric core, absorbent sponge type rubber, etc., should not be used.

5. All metal surfaces in direct contact with the food products should be of stainless steel with a finish of at least 2-B, or metal of equal resistance and finish.

6. All structural parts not in direct contact with the food product should be of smooth non-corroding metal, or of metal that can be coated to render it resistant to corrosion and easily cleanable.

7. All external parts should be of round or tubular material where possible to avoid accumulation of debris and to permit easy cleaning. They should be sealed to prevent corrosion.

8. All pockets should be filled, to facilitate self-cleaning and self-drainage.

9. There should be no interior ledges, recesses, pits, unfinished welds, etc.

10. All joints should be continuously welded and ground smooth, or of equal sanitary construction.

11. Legs should be readily adjustable for height and rounded at the floor level. Screw adjustments should have internal threads, with no threads exposed.

12. The lowest horizontal part should be at least six inches above the floor.

13. No motor or other drive mechanism should be mounted over the product unless adequately equipped with well-drained pan under all bearings. Any lubricated moving mechanism should be located or protected so contamination of product cannot occur.

14. Sanitary-type self-draining greaseless inboard bearings should be used. If other type bearings are used, they should be sealed with corrosion-resistant non-absorbent material and be drained to the outside. Outboard bearings should be sealed from the interior with corrosion-resistant non-absorbent material. All seals should be accessible and provided with means of adjustment to prevent leakage.

15. All belts should be of sanitary grade, moisture-resistant, non-absorbent material.

16. Conveyor guides, splash guards, etc., should be easily removed or of open construction to permit cleaning.

17. All pulleys should be of sealed drum metal construction (without recesses or open joints). Some device should be provided to prevent product being ground between return belt and pulley.

18. Provision should be made at all transfer points to prevent accumulation of leaves, stems and other debris.

19. Steam and water valves should be designed and installed to prevent any leakage.

20. Product and ingredient line valves should have no pockets or recesses.

21. Of prime importance is the availability of fresh and/or reusable water with emphasis on the utilization of water which has already been used in another operation. In considering the reuse of water, an essential factor is the effect of possible microbial contamination due to heavy organic load or elevated temperatures.

22. Subsequent washings in any stage should be in water cleaner than the previous stage so that recontamination of the product will not occur.

23. All product washing sections should be self-cleaning to prevent accumulation of silt, dirt, leaves, etc.

24. Drains and water inlets should be of adequate size to permit rapid draining and refilling. Drains should be at the lowest point and with no inside collar or projection. Water inlets should discharge above water line, where skimming type overflow is desired, well below the water line for complete bath changing overflow. Overflow and makeup rates should meet maximum production requirements.

25. Drain pans, where necessary, should be sloped for adequate drainage with outlet properly conducted to sewer. They should be wide enough to prevent spillage and open or detachable for easy cleaning.

26. Drainage from equipment should be ample to convey all waste water without spillage.[2]

PART IV: WHAT MAKES AN ALL-ROUND SANITARIAN?

The key man in the sanitation program of every food plant, large or small, must be an individual assigned the specific responsibility for this work. This must be a genuine assignment by management—not just window-dressing — and his accomplishments must be judged on the basis of what he has achieved. The sanitation criteria for evaluation may include effectiveness of clean-up, reduction in cleaning time or costs, and reduction of extraneous contamination.

In a small factory, sanitation may be only part of the employee's duties —although results are better when he is concerned with nothing else. But whatever time he spends at the task, it should be enough to discharge this responsibility adequately.

The successful sanitarian needs these characteristics:

Authority: He must be independent of superintendents, technologists, etc., so he can deal with them on their level. All personnel must know that he reports directly to top management, and that he alone directs operations such as clean-up, insect and rodent control.

Training: Ideally, he should have a degree in sanitation, bacteriology, chemistry or engineering, earned through study of such subjects as bacteriology, chemistry, encomology, food technology, parasitology or sanitary engineering. He should at least have some training in these lines, and

should read the literature and take such available short courses in food technology or sanitation as may improve his skills.

Skill with People: A capable sanitarian must get along well with other supervisory personnel, with whom his duties bring him into association, and sometimes into conflict. He should be able to organize the plant's employees, holding meetings with them and in other ways leading them into good practices. He should know how to publicize and popularize sanitation. And he should get along well with suppliers, winning their aid, learning from them, selecting their products wisely.

Enthusiasm: Finally, a good sanitarian is enthusiastic about his work. He knows he is a skilled technician, not a "mopupus." He understands that he carries the same sort of responsibility as an engineer, food technologist or superintendent, and that management looks to him for the same acceptance of responsibility. He knows he can make money for his firm, and can upgrade his position where he is not already properly accepted at the start.

PART V: OTHER OFFICIALS HAVE SANITATION ROLES

While the sanitarian is the key man in his firm's sanitation program, he can succeed only with the full cooperation of the superintendent, foremen and forewomen, raw product manager and food technologist.

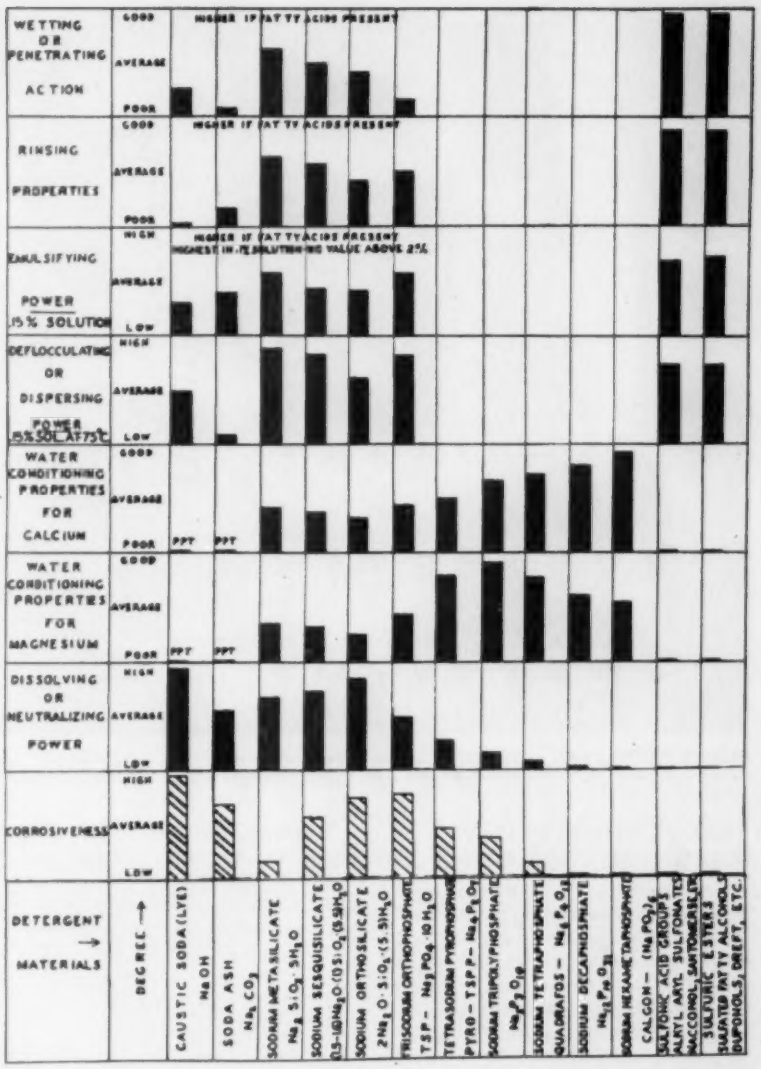
Management needs, therefore, to start him out on the right foot with these other supervsiory officials, by calling a meeting to introduce him to them, and by providing at that time a carefully-worded written memorandum on his exact responsibilities. This memo should make the following clear:

1. The sanitarian will make an immediate survey and evaluation of sanitation practices, and will provide for subsequent ones at regular intervals.

2. From these surveys, and his own training, he will develop procedures for all sanitation maintenance and clean-up work, with suggestions for preventive action.

3. These proposals will be presented to the supervisory officials for discussion, adoption and/or modification, and will be reviewed regularly for possible revision.

4. After they are adopted, the sanitarian will have the authority to see



PROPERTIES OF VARIOUS DETERGENTS, as summarized in a report of National Canners Assn.

that they are put into effect, will evaluate them and report on them to management.

5. The sanitarian will develop a proposed budget for equipment and supplies, for the workers he needs, and for any other cost items. Like the procedures, this will be discussed by the supervisory group. When finally adopted, the responsibility for keeping costs within the budget, and for deciding upon equipment-supplies purchases, will be the sanitarian's.

Once the program is launched, the sanitarian will need the cooperation of his fellow-workers at all levels in carrying it out. He will probably use some of the following procedures:

1. Hold a sanitation meeting with all other supervisory personnel prior to the beginning of each season, to check on changes in their equipment, supplies or procedures, and to brief them on what is new in his field.

2. Establish a sanitation committee (possibly combined with a safety committee) which will include one individual from each major department—raw products, preparation, processing, packaging, warehousing, quality control—with whom he can have regular communication. The committee should meet briefly at some regular time; Friday morning is a good occasion, since it permits preparation for the week-end.

3. Arrange to include sanitation as one of the items on the agenda of the daily or weekly foremen's meetings.

4. Arrange for sanitation promotion, through bulletin boards, company houseorgans, union meetings, etc.

KEEPING FLOORS CLEAN and free from product spillage, while operations are going on, is an essential part of food plant sanitation.

Here a worker brushes peas into the grating of a drain in a cannery, as part of a clean-as-you-run program.

PART VI: WORKERS HAVE FINAL SANITATION VOTE

To enthuse the rank-and-file worker about sanitation must be the sanitarian's final and most important duty. These employees actually do the sanitation maintenance and clean-up work, and their labors at sorting, trimming belts, butchering and boning tables, etc., contribute heavily to either a clean or a dirty plant. Instilling good sanitation practices in them will also affect product quality and cost, production efficiency, consumer acceptance.

Housekeeping: Working quarters which are dry, warm, well-lighted, odor-free, painted, adequately ventilated, not too noisy—this should be the starting point in employee sanitation indoctrination. Such rooms should then be maintained in good condition, by avoiding spillage of water or product, by having receptacles for rags and debris, by having efficient drainage and waste-disposal facilities. Good housekeeping not only encourages all employees to do better work, but also helps secure the best quality of workers available, and is a vital factor in safety and fire prevention, and thus in insurance rates based on accident and fire experience.

Employee facilities: Good hygienic facilities contribute to employee interest in sanitation. Toilets should be close at hand, and the generally accepted numbers for the numbers of workers are as follows:

Workers	Toilets
1 to 9	1
10 to 24	2
25 to 49	3
50 to 100	5
each additional 30	1

Urinals may be substituted for some of the toilets, but not for more than one-third of the numbers shown. Wash fountains, or long wall or center sinks should be next to the toilets, between them and work centers. Every worker should have his own locker. All such areas should be well painted, lighted and ventilated. There should be a regular check-up procedure to see that paper towles, soap, toilet tissue and other supplies are in good order, and that the rooms are clean and odor-free. Importance of these matters to the employee, and to his work, cannot be too strongly stressed.

Employee routine: Each employee, on his first day, should attend a sanitation meeting at which the simple principles of infection, poisoning and contamination are explained. He or she should then receive a memorandum explaining when head covering and rubber gloves should be worn, when and where smoking is permitted, requirements in the way of regular bathing, clean clothing and uniforms, wearing of loose jewelry. There should be a clear warning that any employee who does not wash with soap and water after each visit to the toilet, or who fails to observe the other rules, will immediately be discharged. To insure the worker keeping this memorandum, the information should be included with other data of direct interest, such as time and place of receiving pay, holiday schedules, etc. More meetings and memos should be programmed at regular intervals in the season.

In-plant eating: Employees working a full day will either bring lunch with them or buy it from a plant cafeteria, street vendor or automatic dispenser. These workers must have a clean and decent place in which to eat, with clean and safe food service facilities where any are provided, and with adequate waste-disposal baskets, etc. The area should be policed and sanitized after every meal, and employees working in company cafeterias should be examples of the most sanitary food handling practices.

On-the-job sanitation: The sanitarian should especially encourage clean and sanitary practices among workers while engaged in preparing or packing the company's products. Employees should be commended or criticized for their care in depositing trimmings down chutes instead of on the floor, for the neatness of their individual work stations, for their attention to grading and culling, for degrees of personal hygiene.

PART VII: PROFESSIONAL TOOLS ARE ESSENTIAL

To discharge his duties successfully, a food plant sanitarian will need three types of products: sanitation equipment, sanitation supplies, laboratory facilities.

Equipment: Brushes, brooms, scrapers, sponges and squeegees carefully selected for the various jobs to be done are the first essential in the the way of mechanical cleaning aids. Water hoses equipped with automatic shut-off valves also are required, and they should have jet, fin, bent and spray-head-brush interchangeable nozzles. Low pressure high-temperature units consisting of a steam-heated detergent tank equipped with a pump capable of creating a pressure of about 50 psi are widely used, in both portable and stationary forms. High-pressure water pumping units, also portable or stationary, operate at pressures of up to 600 psi; some have the added desirable feature of a mechanism for mixing detergent solutions with the water. High pressure hot water units, which make use of the Venturi tube principle to develop pressure from a steam source (above 50 psi), are widely used in food plants. Many types of steam guns are available, from detergent suppliers or from manufacturers, to mix detergent and steam and produce a jet of hot solution. Depending on the plant and products, mechanical equipment can often save much more than its cost in wages, improved sanitation, shorter down-time, etc.

Precautions: Waterproof clothing and insulated gloves should be worn if hot water or strong detergents are employed. Slow-acting automatic shut-off valves are recommended, to avoid hose jumping. High-pressure hoses should be limited to 50 feet. Pumps should have corrosion-resistant surfaces where strong alkalis or acids are used. Low-pressure washing should preced high-pressure cleanups, to avoid scattering food particles.

Detergents: Five major types of detergents are available—those which are strongly alkaline, mildly alkaline, neutral, mildly acid and strongly acid. Factors to be considered in selecting them include soil to be removed, surfaces to be cleaned, concentration required, method of application, compatibility with water, availability and coat. Detergents have a variety of properties — wetting ability, rinsing, emulsifying, dispersing, water conditioning, neutralizing, corrosiveness—which need to be taken into account when making selections. The extent to which some of the major types of detergents possess these properties is shown in an accompanying chart[3]. With the aid of his supplier, the capable sanitarian will be able to provide for all clean-up needs while still keeping the number of different detergents to a mimimum, both as a precaution against misuse and also as an economy measure. He will also see that his supplies are carefully marked, or perhaps stored in different-colored barrels.

Other suppliers: In addition to understanding and using detergents, sanitarians should be equally familiar with, and supplied with, various other supplies. Among these are in-plant insecticides, rodenticides, disinfectants, odor-masking and controlling chemicals.

Laboratory: A food plant sanitarian will need laboratory services from time to time, and these may be provided by the plant quality control

VACUUM CLEANERS are important sanitation tools. In this fish processing plant, hard-to-inspect beams are being swept clean to make sure no contaminant will later fall into the product when the packing line is in operation.

facilities, or by an independent laboratory. Such laboratories will be used for examination of incoming water, detergents and germicides, and for checking outgoing sewage. Also, they will be called on for such in-plant bacteriological tests as plate and direct microscopic counts, tests for Escherichia coli (which indicate contamination from animal waste), and swab test of belt conveyers. Also required are examinations for chlorine residuals, for pH (acidity/alkalinity), and for pesticide residues.

Other supplies: In addition to the equipment and supplies already named, the sanitarian will need to provide insecticides and application equipment for them, rodenticides in the form of traps-baits-poisons, waste containers for cigarettes and garbage, germicides and disinfectants for sanitizing.

PART VIII: PROCEDURES ARE ESSENTIAL

To be successful, a food plant sanitation program's details must be written down, and should be set up as printed or mimeographed check-off procedures sheets, just as automobile service station operations check off the steps in car lubrication.

The procedures should be simple and direct, but complete, and are best assembled in pads for easy plant handling. A typical one might be as follows

ENCLOSED HEAT EXCHANGER CLEANING PROCEDURE

(1) Flush out product side with clear water ..... ☐

(2) Prepare solution: Mix one red cupful of alkaline detergent from red barrel in one green bucketful of water. Pump-circulate 20 minutes after bringing to operating temp. (180°F minimum) ..... ☐

(3) Flush five minutes with cold water ..... ☐

(4) If not to be used immediately, prepare solution of 1 blue cup chlorine sanitizer to one blue bucketful of cold water. Pump-circulate 10 minutes, drain, flush with clean cold water ..... ☐

(5) EVERY FRIDAY — circulate solution of one white cup of descaling compound to 1 blue bucketful of cold water through water side for 10 minutes, then neutralize by one-minute circulation of alkali solution (make as in No. 2 above), and flush with cold water 5 minutes ..... ☐

In developing these written procedures, the sanitarian will work closely with plant production officials, whose previous experience will be most helpful and whose control over methods of receiving and handling products can either increase or decrease sanitation problems. He can also obtain useful data from suppliers of equipment, detergents, etc., who are familiar with what their products will do and how to use them. Most detergent suppliers are able to make a survey of a plant and provide written cleaning instructions.

Procedures should be developed for all of the spheres of activity of the sanitarian, including at least the following:

1. Daily cleanup activities.
2. Weekly cleanup work.
3. End of season cleanup and protective maintenance work.
4. Beginning of season equipment cleanup and preparation for use.
5. Housekeeping sanitation (lockers, restrooms).
6. Rodents and animal pests—control of.
7. Control of insect pests.
8. Control of microorganisms.
9. Purity of water sources, methods of distribution through the plant.
10. Waste disposal (solid and liquid).
11. Maintenance of safety devices, fire protection equipment.
12. In-plant eating facilities—inspection and maintenance.
13. Inspection of areas adjacent to the plant.

IX: SANITATION EDUCATION MUST BE CONTINUOUS

Tremendous changes are occurring in the field of food plant sanitation. New government enforcement efforts and regulations change legal requirements. New supplies and equipment make improved techniques possible. Increased production demands add sanitation problems, as do new kinds of food products with specialized sanitation needs.

The sanitarian should have in his budget reasonable funds for keeping up to date on these developments. These should provide, as a minimum, for the following:

1. The regular bulletins of USHEW's Food & Drug Administration, U.S. Public Health Service, and U.S. Depart. of Agriculture, on the subjects of sanitation, additives, residues, pesticides.

2. Membership in Institute of Sanitation Management, the national professional society for industry sanitarians. Headquarters are at 55 West 42nd St., New York 36, N.Y., and annual dues at this writing are $10.00.

3. Membership in international Assn. of Milk & Food Sanitarians. Headquarters are at P.O. Box 437 Shelbyville, Ind., and annual dues are $7.00.

4. Subscriptions to at least one processed food journal concerned with the sanitarian's field.

In addition, a great many food sanitarians find it desirable to have memberships in food technical societies, such as Institute of Food Technologists, Association of Cereal Chemists, Institute of Shortening and Edible Oils.

X: AN ANNUAL REVIEW OF SANITATION IS ESSENTIAL

At the end of the food firm's fiscal year, the sanitation program should come up for regular review. At that time, the sanitarian should be required to present a written report on the year just concluded, including such items as:

1. The budget: how actual expenditures compared with planned ones, what changes should be made for the next year.

2. The general level of sanitation in the plant, department by department, with data as to what was done to improve each operation.

3. Specific recommendations for further improvements in sanitation in the coming season.

4. A concluding statement as to what contributions the sanitation program made during the year, to the company and to its profits.

This should be presented at a meeting similar to that described in Part V, which all of the supervisory personnel attend. The meeting should be open to discussion by all, and the annual sanitation report should be modified until the heads of the other departments will accept those of its provisions which concern his field of work.

One annual review in a meeting is not enough, however. The sanitation committee will hold weekly meetings, as detailed in Part V. The committee should make a point of asking the plant's general manager to make a monthly inspection to satisfy himself that all is being done that can be done. And the committee should also meet regularly with the quality control director to check for danger signals the latter may have noticed.

Most important of all, a wise sanitarian provides time in his operations for his own thoughtful review of all that he is doing. These regular examinations should help him determine each project's worth-whileness, and also how well it is being handled. This article, or some similar check-list, should be used for reviewing his work at least at monthly intervals.

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Coastal (for the Far West) and Atlantic (for other leading broccoli areas) are bred by Asgrow to slice dollars from your costs and add extra profits for your pack.

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CANNED FOODS

U.S. Exports in 1960 Gain 7.6% over 1959

Exports: U. S. exports of principal canned foods (see also Seafoods) are reported by USDC as follows (for calendar years, in thousands of lbs.):

Item	1959	1960
Baby foods	15,181	12,080
Fruits	337,305	380,212
Juices, fruit*	282,340	284,430
Juices, tomato	31,497	28,877
Meats	13,678	9,474
Milk	121,016	143,109
Poultry	9,691	12,787
Vegetables & soups	138,434	150,771
TOTALS	949,142	1,021,740

*Includes single-strength and concentrates, except frozen, converted from gallons basis 10-lbs. per gal.

Can shipments: U. S. shipments of cans to food packers, by manufacturers, have been as follows in the first four months of the current year and of 1960, in short tons:

Item	1960	1961
Fruits and juices*	178,321	150,633
Vegetables and juices	127,991	153,596
Evap. & cond. milk	59,248	61,921
Other dairy foods	8,571	8,342
Meat & poultry	51,007	52,268
Fish & seafood	32,874	37,265
Coffee	71,271	77,425
Lard & shortening	28,016	33,681
Baby foods	14,384	11,291
All other foods	160,267	165,396
Petfoods	61,967	58,554
TOTAL OF ABOVE Nonfoods		
GRAND TOTAL	1,286,085	1,326,458
Shipments for sale	1,063,698	1,092,880
From captive plants	227,387	233,578
Aerosols	22,195	23,337
Aluminum cans	6,471	11,923

*Fruit-juice figures include cans for juice-drinks.

Fruits: U. S. 1960-61 pack of canned apples is reported by NCA as 3,325,982 cases of 6/10s, against 4,033,768 cases in 1959-60 . . . U. S. production of canned applesauce, NCA says, was 17,570,622 cases in 1960-61, compared with 17,240,300 in 1959-60 (actual case basis) . . . For 1961, the outlook is for more cherries in 1961—both sweet and red tart—than in 1960, for a slightly smaller apricot crop in California and Washington (where most of the canned pack is produced), for a pear crop approximately on a par with that of last year (both generally and on the Pacific Coast where the big pack is made), for a Northwest prune crop larger than the very small harvest of 1960.

Seafoods: Canned fish and shellfish exports from the U. S. totaled 47,078 thousand lbs. in 1960, down from 66,529 in 1959.

Citrus: Florida packs of canned grapefruit sections to June were running a little above the 1959-60 season, whereas production of canned citrus salad was down somewhat, Fla. Canners Assn. reports . . . Production of all canned juices in Florida except tangerine is reported smaller than in the earlier season.

Vegetables: Acreage of nine processing vegetables (for canning, freezing and glass-packing) is estimated at 1,657,010 acres in the U. S. in 1961, against 1,505,230 acres in 1960, according to USDA. This is a gain of 10%, and is across the board except for winter and spring spinach, which is showing a small decline . . . Production of winter and spring spinach for processing in the U. S. is reported as 122,900 tons, contrasted with 122,400 tons in 1960, USDA says . . . First estimate on the U. S. 1961 harvest of pears for processing shows 506,750 short tons, somewhat above the 445,390 tons of 1960.

Poultry: Poultry inspected by USDA for canning and other processing totaled 190,347,000 lbs. ready-to-cook weight in the first four months of 1961, well above the 110,016,000 lbs. reported for January-April of 1960.

Pineapple: Hawaiian - Philippines pack of canned pineapple totaled 20,946,766 actual cases in the year ending May 31, 1961, against 19,489,488 cases in 1959-60, according to PGAH. Production of canned pineapple juice, again in actual cases, was 12,950,725 cases in 1960-61, compared with 11,921,815 cases in 1959-60. In 1960-61, also the industry produced 1,032,706 cases of concentrated juice, basis 6/10s in concentrated form.

DRY FOODS

Exports Down Slightly— Industrial Dry Milk Use Gains

Exports: U. S. 1960 exports of major types of processed dry foods compared with 1959 as follows, according to USDC (calendar years, thousands of lbs.):

Item	1959	1960
Beans	451,067	313,554
Cereals, breakfast	43,724	41,399
Cowpeas & chickpeas	4,013	8,045
Dates	5,450	4,694
Eggs	6,559	5,417
Fruits	139,851	212,813
Milk	305,278	227,198
Nuts	77,428	97,612
Peas	189,949	199,216
Spices	4,078	4,313
Vegetables & soups	8,434	10,462
TOTALS	1,233,831	1,124,723

Nuts: California's almond crop is forecast at 70,000 unshelled tons, up from 53,000 in 1960. Iran looks for 11,000 shelled tons in 1961, against 3,500 tons in the year 1960. Italy expects 60,000 shelled tons, against 13,000 tons in 1960; it would be the largest harvest since 1929. Portugal will harvest about 5,000 shelled tons this season, compared with 3,800 tons in 1960 . . . Brazil expects to produce 45,000 unshelled tons of Brazil nuts in 1961, a little short of the 48,000 tons of 1960 . . . The Italian filbert crop will apparently equal, and may surpass, the record 1955 harvest of 50,000 unshelled short tons. Spain expects only 14,000 tons this season, down from 21,500 tons (unshelled) in 1960. No Washington-Oregon estimates have so far been made, but the outlook is for an above-average crop . . . The California walnut crop is estimated at 72,000 tons, unshelled, contrasted with 70,300 tons last year.

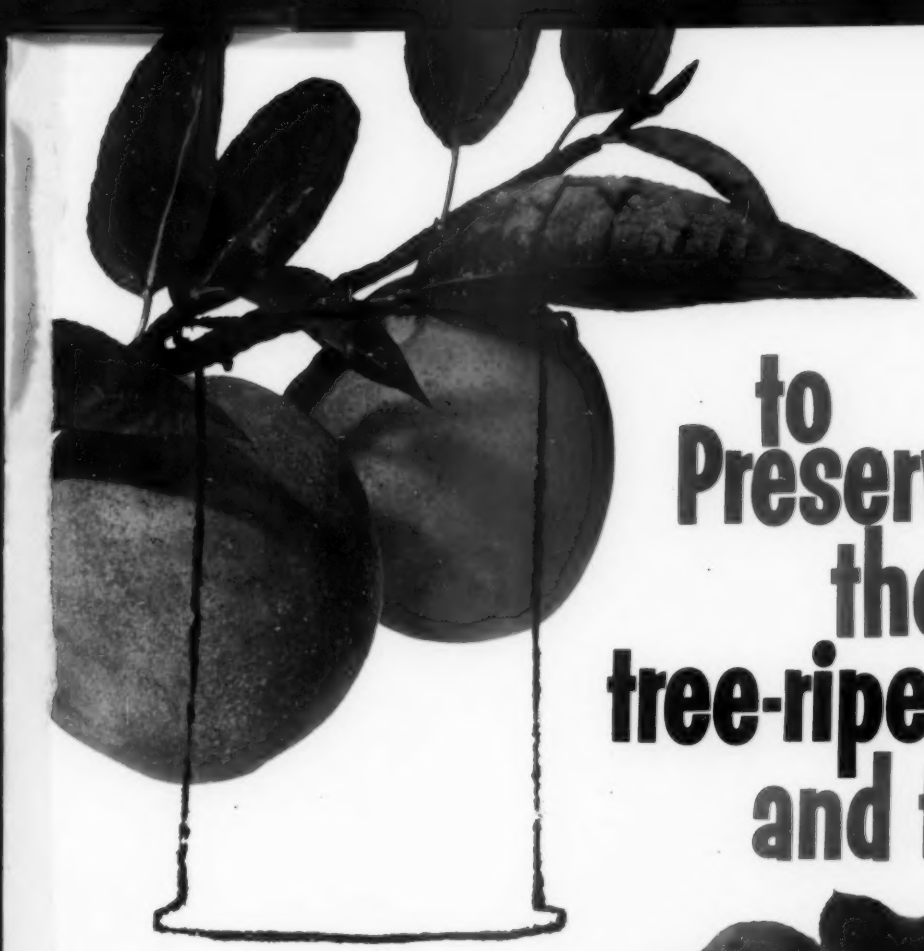
Milk: About 20.4% of U. S. nonfat dry milk domestic sales in 1960 were for packaged home distribution, 1.1% were for institutional use, and 78.5% were for other food manufacturing, according to Am. Dry Milk Institute. Both retail and institutional percentages were down slightly, compared with 1959, while the industrial usage showed a gain. Principal nongovernment sales outlets were as follows in the two calendar years, in terms of millions of lbs.:

Item	1959	1960
Bakery	286.1	319.2
Dairy	210.0	214.0
Retail packaged	177.3	188.2
Meat processing	67.8	83.0
Prep. dry mixes	30.6	48.9
Confectionery	16.5	16.6
Chems., pharmacs.	0.8	12.0
Institutions	9.9	10.1
Soft drinks	2.4	2.8
Soup mfrs.	4.1	0.9
Animal feed*	4.9	10.1
All other uses	16.5	16.6
TOTALS	826.9	922.4

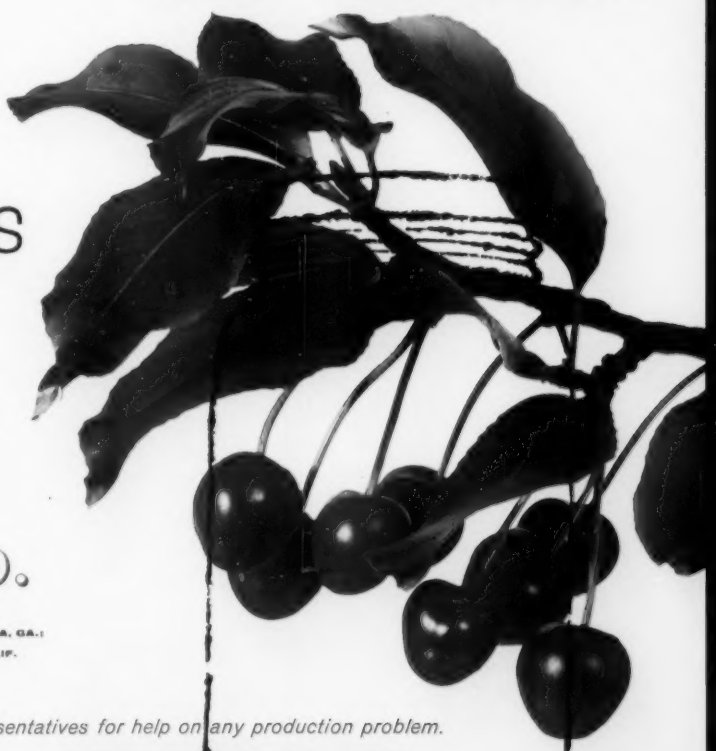
*Nonfat milk processed originally for human use.

In 1960, also industrial uses consumed all except 1.6 millions of the 59.0 million lbs. of dry whole milk sold in the domestic market, and all of the dry buttermilk produced for human consumption. Of the total dry buttermilk pack, industrial human food uses consumed 73.1 million lbs., while 14.0 millions went into non-human-food uses.

Fruits: California's dried prune crop is estimated at 138,000 tons in 1961, approximately the same as the 139,000 tons USDA reported for 1960 and 1959. The Washington-Oregon-Idaho crop of prunes for all purposes will be much larger than the very short harvest of 1960 . . . Present out-



to Preserve the tree-ripe flavor and texture...



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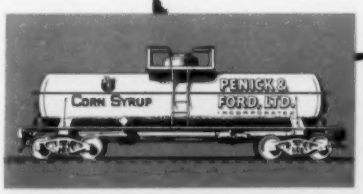


look for California's raisin-type grapes is for a harvest somewhat bigger than that of 1960, but distribution of the crop between the dried fruit, wine and other industries remains to be determined . . . As reported in Canned Foods, the California apricot and stone peach crops for all purposes are expected to be rather similar to those of 1960 — apricots a bit smaller, peaches somewhat larger . . . California's figs look promising at this time.

GLASSED FOODS

Exports Drop—More Pickles and Catsup Likely

Exports: Overseas U. S. shipments of foods largely packed in glass were down in 1960, compared with 1959. Data for the two calendar years are as follows, in thousands of lbs.:

Item	1959	1960
Preserves	1,826	1,775
Veg. shortening	30,687	22,068
Salad dressings	7,159	5,694
Catsup, etc.	15,812	15,486
Other sauces	4,871	4,532
Pickles, cucumber	11,471	9,520
Vinegar*	7,580	3,090
TOTALS	79,406	62,165

Pickles: An estimated 111,630 acres have been planted to cucumbers for pickles in the U. S. in 1961, says USDA, 8% more than the 103,380 acres planted in 1960. Michigan has the largest acreage this season, followed by No. Carolina and Wisconsin. Preliminary reports point to a good harvest.

Catsup: Cold and wet weather has delayed planting and growth of tomatoes in many areas and the season is somewhat behind schedule. However, recent climatic conditions have been favorable in many areas, and with acreage up over last year, the processing tomato crop of the U. S. should be larger than that of 1960, and hence production of tomato products in glass are also likely to show a gain. A feature of the season will be test runs of many different makes and models of mechanical harvesters.

FROZEN FOODS

Exports Show Gains— Fish and Poultry Packs Up

Seafoods: U. S. production of frozen fish to June 1 has been as follows in 1960 and 1961, in terms of thousands of lbs., according to USFWLS:

Item	1960	1961
Salt-water	39,099	41,264
Fresh-water	961	1,153
Shellfish	30,764	30,695
Animal food/bait	18,579	23,227
TOTALS	89,403	96,339

Poultry: U. S. production of certified ready-to-cook poultry in the first four months of 1961, compared with 1960 as follows, in thousands of lbs., according to USDA:

Item	1960	1961
FROZEN		
Chickens	108,908	140,287
Turkeys	55,748	83,100
All other	7,600	6,892
Totals	172,256	230,279
NON-FROZEN ICED		
Chickens	1,073,662	1,200,903
Turkeys	9,968	14,693
All other	919	690
Totals	1,084,549	1,216,286

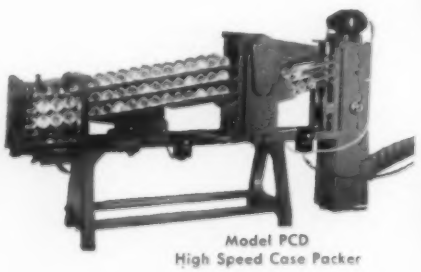
Peas: California's pack of frozen peas in 1961 went up to 32,063,837 lbs., from 14,877,152 lbs. in 1960, according to Calif. Freezers Assn. This is a record output, slightly ahead of the former top production year of 1956.

Exports: U. S. frozen food exports gained in 1960 over 1959. In thousands of lbs., shipments of major commodities in the two calendar years were as follows:

Item	1959	1960
Eggs, frbz. & presvd.	595	2,640
Fruits	10,759	11,135
Juices*	38,790	48,710
Vegetables	23,524	31,192
TOTALS	73,648	95,677

*Mainly concentrates, converted at basis of 10 lbs. per gal.

every 3 seconds . . .



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Processed Food Prices

CANNED FOOD PRICES

F.O.B. packing plant, per dozen containers, as of the first of the month indicated. Data compiled from latest available price lists of individual packers. Districts as follows:

ATLANTIC (Atl.) — Me., N. H., Vt., Mass., Conn., N. Y., N. J., Penna., Md., Del., Va.

SOUTH (S.) — N. C., S. C., Ga., Fla., Ky., Tenn., Ala., Miss., Mo., Ark., Ia., Okla., Tex., P. R.

MIDWEST (M.)—Ohio, Ind., Ill., Mich., Wis., Minn., Iowa, S. D., Neb., Kans.

WEST (W.) — Alaska, Ariz., Calif., Colo., Hawaii, Ida., Mont., N. M., Ore., Utah, Wash., Wyo.

Prices are in dollars and cents, with the dollar omitted when the range covers more than one dollar. When the range is 2 dollars or more, the prices are averaged.

$1.75 to $1.95 is written 1.75-95
$1.75 to $2.95 is written .75-2.95
$1.75 to $3.95 is averaged 2.95

CANNED FRUITS

	June 1, 1961 —303—	—10—	July 1, 1961 —303—	—10—
Apples, sliced				
Atl.		11.00		11.00
Wes. 170		10.50	1.90	10.50
Applesauce, fancy				
Atl.	1.30-40	8.00-25	1.30-40	8.00-25
Wes.	1.55	.75-9.25	1.55	.75-9.25
Apricots, ch. hlvs.				
Wes.	2.05	11.70	2.05	11.70
Cherries—Red Tart Pitted, water				
Atl.	2.25	15.00	2.25	15.00
Mid.	2.60	.50-14.50	2.60	.50-14.50
Wes.	2.30	13.00	2.30	13.00
Cherries—Sweet Unpitted, Wes. Ch.				
dark	3.42½	18.00	3.42½	20.00
light	3.00-42½	20.00	3.30-42½	19.00-25
Citrus—Grapefruit (303 & 46 oz.) fcy. swtnd.				
So. 190		9.50	1.90	9.50
Citrus-Salad (303 & 46 oz.) fcy. swtnd.				
So.	2.50		2.50	
Cranberry Sauce (No. 300) fcy. puree				
Atl. 175		10.50	1.75	10.50
Figs				
Wes.	2.52½	13.45	2.52½	13.45
Fruit cocktail, choice				
Wes.	2.00-05	10.90	2.12½	11.40
Fruits For Salads, fcy.				
Wes.	2.80	16.75	2.80	16.75
Olives, Ripe (No. 1 Tall) Wes.				
lg.	2.90	18.10	2.90	18.10
ex. lg.	3.00	18.80	3.25	19.00
Peaches—Clingstone, Wes. ch.				
slice	1.66-85	9.50	1.66-85	9.50
hlvs.	1.72-85	9.50	1.72-85	9.50
Peaches—Freestone, ch. hlvs. Elb.				
Mid.	2.85	10.50	2.85	10.50
Wes.		10.25		10.25
Pears, ch. hlv. Bart.				
Mid.	2.30	12.00	2.30	12.00
Wes.	2.25	12.60	2.25	12.60
Pineapple (No. 2) Wes. fcy.				
Slice	3.57½	15.50	3.47½	15.00
Chnk.	3.42½	14.90	3.32½	14.50
Cr. hs.	2.90	12.40	2.80	11.90
Plums—Purple, ch.				
Wes.	2.07½-10	11.25	2.07½-10	11.25

CANNED VEGETABLES

	June 1, 1961 —303—	—10—	July 1, 1961 —303—	—10—
Asparagus (No. 300) fcy. lg. green				
Atl.	3.75-77½	12.25	3.75	12.25
Mid.	3.85	14.00	3.85	14.00
Wes.	3.95		3.75	
Asparagus, White				
Wes.	3.75-85		3.75-85	
Beans, Green Lima, fcy. small				
Atl.	.85-2.10	13.00	2.10	14.00
Mid.	2.00-10	12.00-25	1.85-2.10	13.75-15.00
Beans, Green Snap, fcy cut (Wes. B. L.)				
Atl.	1.30-40	8.00-50	1.45-50	8.50
So.	1.50	8.00	1.50	8.00
Mid.	1.50-55	.50-9.00	1.45-55	9.00-50
Wes.	1.92½	10.00	1.95	10.50
Beans, Wax Snap, fcy., cut.				
Atl.	1.47½-97½	.50-9.00	1.47½	9.00
Mid.	1.65	9.75	1.65	10.00
Beets, fcy. sliced				
Atl.	1.30-40	6.50	1.30-40	6.50
Mid.	1.10-25	.50-6.25	1.20-25	6.25-50
Wes.	1.12	6.35	1.47½	6.45
Carrots, fcy. diced				
Atl.	1.20-30	.50-6.00	1.10	6.25-30
Mid.	1.00-20	.00-6.25	1.15-25	6.25-50
Corn-Golden, Cream & Kernel, fcy.				
Atl.	1.60-65	9.25-50	1..80	9.25-50
Mid.	1.65-70	9.50	1.55-65	9.00-50
Wes.	1.72½-77½		1.72½-77½	
Corn-White, Cream & Kernel, fcy.				
Atl.	1.70	9.25	1.70	9.25
Peas, Green (No. 2 sieve), fcy. early				
Atl.	2.00	12.00	.75-2.05	11.75
Mid.	2.00	12.00	2.00	12.00
Peas, Green (No. 2 sieve), fcy. sweet				
Atl.	.90-2.00	9.00	1.55	.75-9.00
Mid.	2.00	12.00	2.00	12.00
Wes.	1.65	9.00	1.55	9.40
Peas, Blackeye (No. 300) fcy.				
So.	1.25	7.50	1.25	7.50
Pimientos (4-oz.) whole, So.				
tin	1.65		1.65	
glass	1.85		1.85	
Potatoes, Sweet (No. 3-Vac.) fcy. hvp. syrup whole				
Atl.	1.50-65	9.50	1.50-65	9.50
So.	2.75	10.00	2.75	10.00
Potatoes, Sweet (No. 3-Vac.) fcy. vacuum whole				
Atl.	2.30		2.30	
Potatoes, White, fcy. whole tiny				
Atl.	1.05	6.50	1.05	6.25
So.	1.25	9.00	1.25	9.00
Pumpkin (No. 2½), fcy.				
Atl.	1.55-60	5.50-75	1.55-60	5.50-75
Mid.	1.60-65	5.50-75	1.60-65	5.50-75
Wes.	1.60	5.70	1.60	5.70
Spinach, fcy.				
Atl.	1.40	7.00-50	1.40	7.00-50
So.	1.15-20	5.50-65	1.20	5.35
Wes.	1.10	4.50-75	1.17½-32½	.85-5-.30
Other Green, So. fcy.				
Trnp.	.95	4.40	.95	4.40
mxtd.	.95	4.40	.95	4.40
Sauerkraut, fcy.				
Atl.	1.27½	5.85	1.27½	5.75
Mid	1.27½-30	5.85	1.27½-30	5.85
Tomatoes, Ex. Std. (Wes. fcy.)				
Atl.	1.60	9.00	1.60	8.25
Mid.	1.50-65	8.25-50	1.50-65	8.25-50
Wes.	1.75	9.50	1.75	9.50
Tomato Catsup—Tin, fcy.				
Atl.		10.50-75		10.50-75
Mid		.75-11.00		.75-11.00
Wes.		11.00-90		11.00-90
Tomato Paste (6 oz.) 26%				
Atl.		10.85		10.85
Mid.		14.00		14.00
Wes.		14.00	1.12½	14.00
Tomato Puree (No. 2½) fcy. 1.045 (Wes. 106)				
Atl.	2.37½	7.50	2.37½	7.50
Mid.		.50-7.00		.50-7.00
Wes.	1.75	8.50	1.75	8.50
Tomato Sauce (8-oz.) fcy.				
Atl.		11.00		11.00
Wes.	.82½	8.70	.82½	8.90
Mixed Vegetables, fcy. Peas-Carrots				
Atl.	.65-2.00	.75-10.00	1.60	7.50
Mid.	1.65	9.75	1.65	9.75
Wes.	1.62	9.00	1.62	9.00
Mixed Vegetables, Succotash, fcy.				
Atl.	1.75	10.37½	2.05	10.37½
Mid.	1.75	9.75	1.75	9.75
Mixed Vegetables, other				
Atl.	1.55-75	9.75	1.55-75	9.75
Wes.	1.75	9.75	1.45	7.75

FROZEN VEGETABLES

(Retail per doz.)
(Inst. per lb.)
(Grade A)

	June 1, 1961 —Retail—	—Insti.—	July 1, 1961 —Retail—	—Insti.—
Asparagus—Jumbo, 10-oz., 40-oz.				
Atl.	4.40	.49½-.51	4.40	.51
Wes.	3.95	.49-.51	4.07	.48
Beans, Fdhk. Lima—10-oz., 40-oz.				
Atl.	2.30-59	.27	2.30-59	.27
Wes.	.85-2.08	.22	1.85-87	.22
Beans, Baby Lima—10-oz., 40-oz.				
Atl.	2.30-59	.24-.27	2.30-59	.27
Wes.	.95-2.05	.22-.25	1.87-95	.22-.24
Beans, Green Snap—Reg. 9-oz., 40-oz.				
Atl.	.80-2.05	.20	.80-2.05	.20
Wes.	1.70	.21	1.70	.21
Beans, Green Snap—Fr. Cut. 9-oz., 40-oz.				
Atl.	.80-2.05		.80-2.05	
Wes.	1.70-80	.20	1.70	.20
Beans, Italian—9-oz., 40-oz.				
Atl.	2.35		2.35	
Wes.	1.85	.21	1.85	.21
Broccoli—10-oz., 32-oz., Spears				
Atl.	2.20-49	.22	2.49	.22
Wes.	1.55-85	17½-.20½	1.85	.18
Brussels Sprouts—10-oz., 32-oz.				
Wes.	.95-2.43	.27-.28	2.27	.27½-.28
Carrots—50#				
Atl.		.08		.08
Wes.		.06		.06
Cauliflower—10-oz., 32-oz.				
Atl.	2.35	.20½	2.55	.20½
Wes.	1.80-85	17½-.20½	1.77-85	.17½
Corn Cut—10-oz., 40-oz.				
Atl.	1.99	.25	1.75-99	.21
Wes.	1.60-65	.20-.21	1.60-65	.19
Corn, Cob—2-ear, 12-ear				
Mid.	2.60		2.60	
Wes.	1.80		1.80	
Kale—10-oz., 32-oz.				
Atl.	1.63		1.63	
Mixed Vegetables—10-oz., 40-oz.				
Atl.	.85-2.05	.22	.75-2.05	.21
Mid.	1.75	.21	1.75	.21
Wes.	1.65-70	.20	1.60-70	.19
Okra—10-oz., 40-oz.				
Atl.	1.80	.22	1.80	.22
Peas, Blackeye—10-oz.				
Wes.	1.82½		1.82½	
Peas, Green—10-oz., 40-oz.				
Atl.	1.69-70	.23	1.55-69	.20
Mid.	1.45		1.37½-40	.16½
Wes.	1.55-65	.18	1.45	.16
Peas & Carrots—10-oz., 40-oz.				
Mid.	1.17½	.16	1.17½	.16
Wes.	1.35-50	.14-.16	1.30	.15
Potatoes—9-oz., 40-oz. Atl.				
F. F.	1.65-79	.19	1.65-79	.19
whip	1.52		1.52	
puffs	1.63		1.63	
Potatoes—9-oz., 40-oz. Wes.				
F. F.	1.40		1.40	
shred	1.15	.07½	1.15	.07½
Pumpkin & Squash—12-oz., 4-lb.				
Atl.	1.63	.09½	1.63	.09-.11
Wes.	.95-1.30	.07½-.08	1.30	.07½
Spinach—10-oz., 48-oz., Leaf				
So.	1.78	.09½	1.78	.09½
Wes.	1.25-30	.09-.09½	1.20-25	.09
Spinach—10-oz., 40-oz., chopped				
So.	1.70	.09½	1.70	.09½
Wes.	1.20-25	.08½	1.20	.08½
Succotash—10-oz., 40-oz.				
Atl.	2.05-25	.23	.95-2.25	.21
Wes.	1.75-95	.20	1.75-77	.20

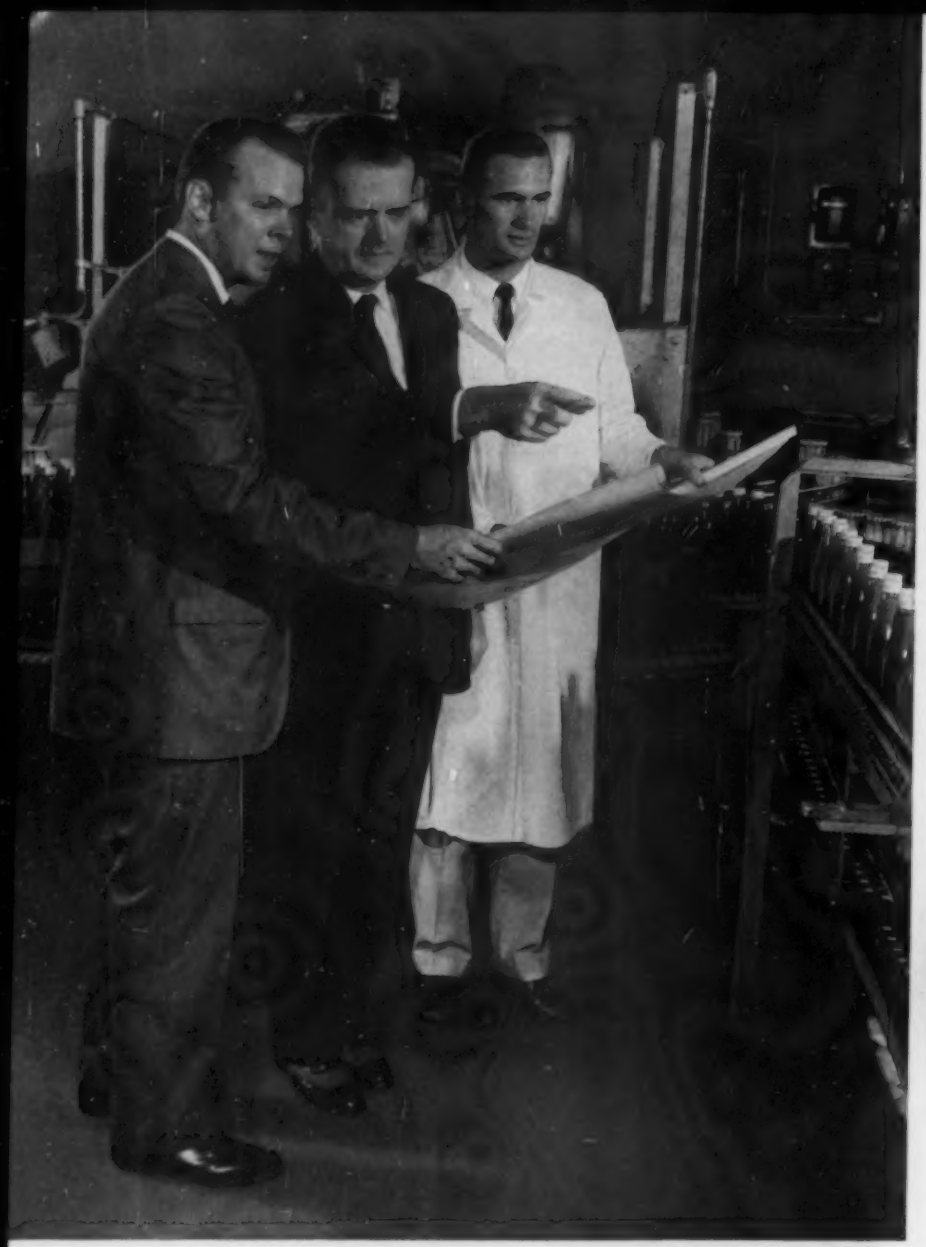
FROZEN FRUITS

	June 1, 1961 —Retail—	—Insti.—	July 1, 1961 —Retail—	—Insti.—
Apples (30# sliced)				
Atl.	.12½			.12½
So.	.13			.13
Apricots (30# Pitted)				
Wes.	.14			.14
Cherries, Red (30# Pitted)				
Wes.	.21			.21
Cherries, Sweet (30#)				
Wes.	.26			.26
Grapes and Pulo (44#)				
Atl.	.12½			.12½
Peaches, Freestone (12-oz., 30# sliced)				
Atl.	2.58	.18	2.58	.18
Wes.	2.25	.13½	2.25	.13½
Blackberries (12-oz., 30# sliced)				
Wes.	1.50	.17-.17½	1.50	.17-.17½
Blueberries (12-oz., 30#)				
Atl.	3.29	.21-.25	3.29	.21-.25
Mid.		.21		.27½
Boysenberries (30#)				
Wes.	2.25	.13½	2.25	.13½
Raspberries, Black (10-oz., 30#)				
Atl.	2.90	.32	2.90	.32
Wes.		.32		.32
Raspberries, Red (10-oz., 30#)				
Atl.	2.40-90	.26	2.40-90	.26
Mid.	2.20		2.20	
Wes.	.95-2.25	.21-.22	.85-2.25	.21-.22
Strawberries (10-oz., sl., 30# whl.)				
Atl.	2.40-56	.24	2.30-56	.24
Wes.	.95-2.05	.18-.20	.85-2.25	.18-.20
Mixed Fruits (12-oz.)				
Wes.	2.85		2.85	

FROZEN JUICES

(Retail per doz. 6 oz.)
(Inst. per doz. 32 oz.)

	June 1, 1961 —Retail—	—Insti.—	July 1, 1961 —Retail—	—Insti.—
Grapefruit				
So.	1.00	5.00	1.00	5.00
Lemon				
Wes.	.96		.96	
Lemonade				
So.	1.16		1.16	
Wes.	.96		.96	
Lemonade, Pink				
Wes.	.95		.95	
Limeade				
So.	1.00	6.00	1.00	5.00
Orange				
So.	1.75	8.65	1.80	8.65
Wes.	1.75	8.65	1.99	8.65



another good reason why you should call Ball first*

*TECHNICAL SERVICE AND COUNSEL

Ball food technologists and industrial engineers are working continually with Ball customers to find cost-saving solutions to troublesome processing and materials handling problems. Ball specialists apply to these joint problem-solving efforts a wealth of experience gained through the years, working with packagers of a wide variety of products, using all types of equipment. Your Ball representative will be glad to show you how your firm also can benefit from these Ball services, which extend far beyond supplying dependable glass containers and closures. Ball Brothers Company Inc., General Offices, Muncie, Indiana

glass containers
metal closures
shipping cartons
packaging counsel
marketing research

Ball YOUR PARTNER IN PACKAGING PROGRESS

NEW EQUIPMENT/SUPPLIES

Liquid Nitrogen Control

DESCRIPTION: Automatic liquid nitrogen control eliminates the manual filling of liquid nitrogen traps, containers, etc.

FEATURES: The control has a vapor-charged remote sensing bulb. This actuates a switch that energizes a solenoid during filling cycles. A plug in timer regulates high liquid level and provides instant interchangeability.

MFR.: Harvey Control Co. Sales representative: Almac Cryogenic Air Co., 1108 26th St., Oakland 7, Calif.

Strawberry Caser

DESCRIPTION: This caser automatically handles frozen strawberry packages. Trade name: Agen Strawberry Casing Machine.

FEATURES: The machine needs only one operator and will handle up to 200 cartons per minute. Caser is of all steel construction.

MFR.: Cascade Frozen Foods, Inc., Box 167, Burlington, Wash.

Film Sealer

DESCRIPTION: This machine heat-seals film covers to prefilled formed containers for frozen foods.

FEATURES: Top cover can be taken from a roll, printed and registered with easy opening tear strip or precut lids. The machine can produce either a

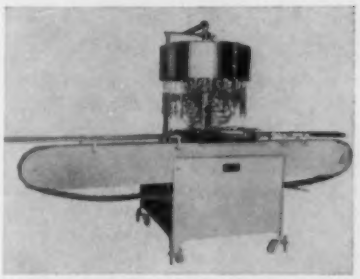
peelable or boilable seal. A variety of films can be handled by the packager.

MFR.: Packaging Industries Ltd., Inc., 154 Pine St., Montclair, N. J.

Rotary Liquid Filler

DESCRIPTION: Rotary filler has an all-around conveyor, positive cam action, and only one star wheel. Trade name: Model PR-A.

FEATURES: The all-around conveyor

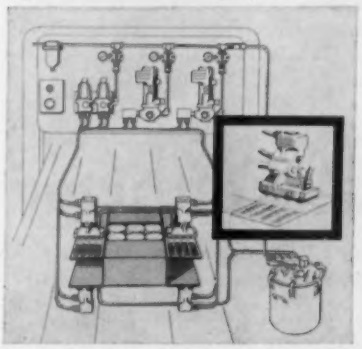


allows versatility in the conveyor design and does away with transfer problems because the container being filled never leaves the conveyor. The cam action does away with the need of cumbersome weights for sealing the container. The one star wheel is on intake only. Filled containers are guided out by a round disc on the discharge side.

MFR.: Packer Machinery Corp., 109 14th St., Brooklyn 15, N. Y.

Glue Spray Kit

DESCRIPTION: This kit is a new attachment for corrugated case sealing machines which sprays adhesive



on flaps. Trade name: Huntingdon Spray Kit.

FEATURES: It can be used on existing case sealers and operates with either resin or dextrin adhesives. The spray kit allows thinner applications; a continuous or intermittent operation; and requires little maintenance.

MFR.: Huntingdon Industries, Inc., Bethayres, Pa.

Aerosol Can

DESCRIPTION: This new 16 oz. aerosol can is coated internally after the body has been formed in the round, in addition to being coated in the flat. Trade name: Crown Spra-Clad 16 oz. can.

FEATURES: New coating method eliminates interior coating scratches that occur during the fabricating process. Cans are available in various interior coatings.

MFR.: Crown Cork & Seal Co., Inc., 9300 Ashton Rd., Philadelphia 36, Pa.

Nylon Kovers

DESCRIPTION: Protective Kovers are made of a special nylon fabric which has 10 coats of impregnations to keep it durable and sanitary. Trade name: Lite-Kote Processing Kovers.

FEATURES: They are easy to put on and take off; and can be laid flat,

washed, sanitized, and put back on very quickly. They are resistant to oil, grease, alkalis, most acids, contamination and mildew. Vulcanized seamed Kovers can be used on sauer kraut tanks, pickle tanks, concentrates, meat packing operations, vegetable packing, etc.

MFR.: Robin W. Adair Co., Inc., Avoca, N. Y.

Catalogues, Brochures Circulars, Bulletins

Valves: Catalog F60 describes and illustrates a full line of air-actuated valves—Ladish Co., Tri-Clover Div., Kenosha, Wis.

Coding: 12-page booklet entitled "The Mechanics of Initiating and Maintaining a Successful Code-Dating System" is available from—Adolph Gottscho, Inc., Hillside 5, N. J.

Conveyor Belts: New brochure acts as a guide for selecting conveyor belts for food and package handling applications—B. F. Goodrich Industrial Products Co., a division of B. F. Goodrich Co., Akron, Ohio.

Brine: Brief RB-1, "Maintenance of Calcium Chloride Brine," gives suggestions for accurately testing brine strength, tips for strengthening brine, and methods for correcting acidity and alkalinity—Calcium Chloride Institute, 909 Ring Building, Washington 6, D. C.

SUPPLIERS NEWS

Companies & Plants

Cherry-Burrell Corp., Cedar Rapids, Ia., plans to market fast hardening rack-type freezing systems under the firm's trademark. Sales agreements have been made with Baker Perkins, Inc., Saginaw, Mich., to supply rack-type cooling equipment, and with the King Company of Owatonna, Minn., to supply chill blast blowing equipment as components of the system.

Voss Belting and Specialty Co., Chicago, has been named by Riegel Paper Corp., New York City, as its exclusive manufacturing fabricator for Permagloss and Permatrak laminated plastic conveyor belting.

A price reduction for most grades of high density polyethylene has been announced by the **Polymer Chemicals Div.** of W. R. Grace & Co., Clifton, N. J. The reductions range from 3 to 5c per lb. Some special resins and compounds priced as high as 52c per lb. will also be included in the reduction.

A price reduction ranging to 6% on Vitafilm packaging film has been announced by **Goodyear Tire & Rubber Co.,** Akron, Ohio.

A new organization of plastic packagers, **Plastic Food Containers Assn.,** 333 N. Michigan Ave., Chicago, Ill., has been formed.

Merchants Refrigerating Co. has moved its executive office to 850 Third Ave. in New York City. The firm also recently completed and opened its Frozen Food City, a modern processing, warehousing and distribution center in Secaucus, N. J.

Marathon Div., American Can Co., Menasha, Wis., is building a pilot plant near Neenah that will house laboratories and small scale machinery to develop new products and production processes.

National Starch & Chemical Corp., New York City, has purchased Kleen-Stik Products, Inc., Chicago, Ill., producer of pressure sensitive labels, foils and films. Kleen-Stik will operate as a subsidiary corporation.

Koch Supplies, Inc., food equipment supplier, has moved to new headquarters at 1411 West 29th St., in Kansas City, Mo. The company is also merging its Equipment Div. into Koch Supplies.

Men in the News

Gerard E. Smith has been promoted to vice president-sales in western hemisphere, Airkem, Inc., New York City, manufacturer of sanitation maintenance products. Mr. Smith was also elected to the board of directors.

R. M. Roberts

M. C. Robinson

Roscoe M. Roberts has been named general sales manager, Canco Div., American Can Co., New York City.

M. C. Robinson has been appointed general division manager of Brockway Glass Co., Brockway, Pa. He will be

CARL ZEISS

Abbe Refractometer

Range of measurements: n_D 1.3 to n_D 1.71 and sugar percentage scale 0% to 95%.
For liquids and solids by transmitted and reflected light.

Measuring surface of index prism is always at horizontal position... Observation telescope mounted stationary at an inclined position to carry out measurements in a relaxed posture... Border line of total reflection and scales are observed simultaneously in telescope... Measuring prism in heating mount can be easily interchanged... All movable parts are protected by being enclosed in the housing.

Special index prisms in heating mount available for measurements from n_D 1.45 to n_D 1.85 and n_D 1.17 to 1.56 (on special order only).

For highest-accuracy measurements, an Ultra-Thermostat, with different constancy of temperature ±0.005° is available as an accessory.

Where high temperatures are involved, the Abbe Refractometer Model B is recommended. It is equipped with temperature controls, and finds wide use in industrial laboratories.

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485 FIFTH AVENUE, NEW YORK 17, N. Y.

COMPLETE SERVICE FACILITIES

in charge of glass container products.

William D. Sweeney has retired as executive vice president of the Dobeckum Co., a division of Dow Chemical Co., Cleveland, Ohio.

B. E. Balzerit

D. D. Downing

Britton E. Balzerit has been named manager-market development, Industrial Div., Corn Products Sales Co., New York City.

Dana D. Downing has been named assistant manager of industrial sales, Diamond Crystal Salt Co., St. Clair, Mich.

Lyman D. Ketchum has been appointed sales manager-corn mill operation in Kankakee, Ill., General Foods Corp., White Plains, N. Y.

Harry M. Schottelkorb has been named administrative manager-southern regional staff, Atlanta, Ga., Owens-Illinois Glass Co., Toledo, O.

M. Wayne Marcoux has been named manager of sales development, and **William O. Cleary,** manager of packaging equipment, Kaiser Aluminum & Chemical Sales, Inc., Oakland, Calif. Both will be headquartered at the firm's foil and container research and development lab. in Chicago.

N. C. Riley

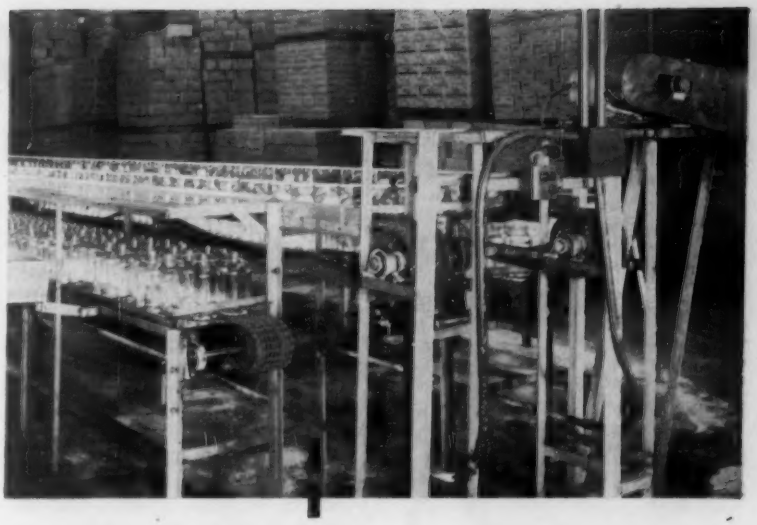
M. J. Kelley

Norman C. Riley has been elected to the board of directors, National Starch and Chemical Co. (Canada). **Gerald W. Burgoyne** has been elected assistant vice president.

Dr. Maurice J. Kelley has been appointed director of research laboratories, Diversey Corp., Chicago, Ill.

Deaths

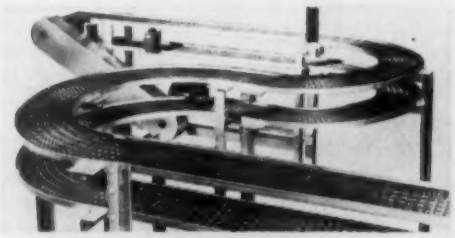
Maurice J. Sullivan, 79, former president and board chairman of the American Can Co., New York City.



PRACTICAL PICKLE PACKERS PREFER ASHWORTH METAL PROCESS BELTS

Everyday, more and more pickle packers are turning to Ashworth Bros. for the solutions to their continuous processing problems. Like their counterparts in other areas of the process industries: baking, bottling, canning, packing and packaging; these practical business men are discovering that there is an Ashworth Metal Process Belt that will "do the job better".

Fabricated in a complete range of mesh constructions from any metal, Ashworth belts provide versatility for your continuous processing line. Whether it is baking, deep frying, quick-freezing, cooling or any other process operation, you can keep your product on the move better . . . more economically . . . with an Ashworth Belt designed to do the specific job.



This patented Ashworth OMNIFLEX Belt will carry your product around *corners and* on the straightaway . . . with no transfers.

Ashworth Representatives are trained and qualified to develop the information necessary to enable our Engineering Department to recommend the correct belt for the specific end use.

For illustrated literature and name of nearest representative, write:

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WINCHESTER, VIRGINIA
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Hardy®

canners fine granulated salt . . .

THE SPECIAL PURPOSE CUBE SALT THAT MAKES BETTER BRINE — Hardy Canners Fine Granulated Salt is a cube crystal salt, carefully double-screened to obtain the best size for canning needs. Hardy cube salt is more resistant to caking while in storage; provides a fast, even dissolving rate that insures fully saturated brine, uniform flavor. Produced under vacuum in the world's only quintuple effect evaporators to obtain unexcelled purity —guaranteed 99.8% + pure sodium chloride.

If you want the very finest salting operation available, install the Hardy ELECTRO-PORTIONER Liquid Dispenser. Provides completely automatic dispensing for brine and other liquids, handles up to 300 containers per minute with precise accuracy. No waste or contamination — the ELECTRO-PORTIONER has totally enclosed recirculation. Available on low rental plan.

Write, wire or phone for more information and current prices.

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P. O. DRAWER 449
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6106

Commercial Pack of Yam Flakes Starts

The first commercial application of dehydrated yam flakes has been announced by Morningstar-Paisley, Inc., New York City. This was the process that was pioneered on a pilot scale by the U.S. Department of Agriculture's Southern Utilization Research Laboratory in Baton Rouge, La.

Yam flakes, (pre-cooked instant sweet potatoes) will be prepared and packed by Produce Processor, Inc., at Windsor, North Carolina. Full production will be in excess of 20 million pounds of yams a year. The sweet potatoes are produced mostly in the Windsor area, though some may be imported. When they are received at the Windsor plant, they are washed in a Aeroglide washer, preheated in a Rietz Mfg. Co. Thermoscrew, lye-peeled, trimmed, cooked, pureed on a F. H. Langsenkamp Co. pulper, and dehydrated on a Buflovak Div., Blaw-Knox Co. drum dryer.

The new product, according to Morningstar-Paisley is superior to freshly mashed potatoes because considerable spoilage and fiber factor in fresh yams has been eliminated in the dehydrated product. Morningstar-Paisley, Inc., 630 West 51st St., New York is the exclusive sales agent.

Institutional Shrimp Pack

Robinson Canning Co., Inc., New Orleans, La., has introduced its first institutional pack of shrimp. Refrigeration is not needed for these #2 tins of Louisiana brand Jumbo Deveined Shrimp. No preparation, other

than discarding brine and rinsing shrimp under cold water, is needed. Each #2 can contains 13¼ oz. drained net weight of cooked, ready-to-use shrimp.

Boil-in-Bag Dinners

Holloway House, Chicago, Ill., has introduced a new line of frozen boil-in-bag dinners which includes—Ham Steak, Swiss Steak, Pot Roast of Beef, and Sliced Breast of Turkey. Packaged in 9-oz. cartons, each dinner is complete with a gravy, and noodles, dressing or potatoes. The Hi-Fi Glamakote cartons are supplied by Marathon Corp., Neenah, Wis.

Low Calorie Line

Smithers Sons Ltd., Los Angeles, Calif., has introduced a line of gourmet main dishes, hors d'oeuvres, sauces, dressings and desserts that are low calorie and low in fat. The line includes dishes such as Welsh Rarebit, tuna Newburg, chicken a la king, small meat balls in sauce, braised beef with vegetables, Newburg and white sauces, French dip, etc. The main dish products are available in multi-serving and single serving cans.

Low-Calorie Dressings

Thomas J. Lipton, Inc., Hoboken, N. J., has introduced two Wish-Bone Low Calorie Dressings—Italian and French style. The firm reports that 90% of the calories have been removed without any sacrifice of flavor. National advertising in major women's magazines and network TV were used to support the introduction. The advertising theme was "Flavor so delici-

ous, only your figure will know they're low calorie." Bottles are supplied by Owens-Illinois Glass Co., Toledo, O.;

closures, Armstrong Cork Co., Lancaster, Pa.; labels, Fleming-Potter Co., Peoria, Ill.

Liquid Dill Seasoning

W. G. Peacock Co., Chicago, Ill., is marketing a ready mix dill seasoning in liquid form. The product can be used in salads and in cooking. Nine seasoning and recipe suggestions are printed on the rear panel of labels supplied by Fraser Label Co. The 5 oz. flint glass bottles are supplied by Hazel-Atlas Glass Div., Continental Can Co., New York City. The bottles are a contemporary version of an apothecary-style jar. Red plastic closures are supplied by Armstrong Cork Co., Lancaster, Pa.

Canned Chili

Stokes Canning Co., Denver, Colo., has introduced a canned chili made with tuna fish instead of meat. Called "Chili of the Sea," it is similar in taste to conventional chili because beans and essential seasonings are used. It can be heated on top of the stove or in a casserole dish in the oven.

Frozen Muffins

Downyflake Foods, Inc., New York City, is marketing frozen muffins—ready for the oven—in a six-muffin aluminum container. Blueberry, honey-nut, corn and raisin-bran muffins in the container are being sold in the New York, Philadelphia, and New England areas. National distribution will come later this year. No defrosting is needed prior to placing the muffin container in the oven. Average baking time is 20 minutes. The pan can be discarded after use, or reused for other baking.

Kosher Mocha Mix

Nutritional Food Industries, Wallington, N. J., has introduced a new product—Kosher Mocha Mix. Available as kosher and pareve, the mix is a liquid food which resembles cream but is made entirely from vegetable ingredients. It can be used in the preparation of soups, creamed vegetables and in baking and cooking as a substitute for cream.

Heat-and-Serve Foods

Terry Foods, Inc., Park Ridge, Ill., has introduced a line of foods in new frozen food containers. These 20-oz. plastic containers (2 to a package) have a twin function — heating and serving. The boilable containers are thermoformed by Formed Container Corp., Orangeburg, N. Y., out of high-density Marlex polyethylene,. In these containers Terry packs sliced beef and gravy, sliced beef and barbecue sauce, and beef chop suey. The beef products retail at $1.98 and the chop suey at $1.29.

New Package Briefs

Zip Opener: New frozen 303 1 lb. fibre can of whole strawberries has a string-pull zip-type opener — a Flav-R-Pac product of North Pacific Canners & Packers, Inc., Portland, Wash.

Chorus Line Can: ReaLemon-Puritan Co., Chicago, Ill., has redesigned its 6 oz. PureSun Orange Drink Base cans especially for multiple "chorus line" display. The individual can depicts a glass of orange drink with a rim of white around the top. In a mass display, there is an alternating pattern of orange and white. The cans are by Continental Can Co., New York City.

HARDY

QUIK-BRINER

AUTOMATIC BRINE MAKER

Hardy®

A new salt dissolver that gives superior service

The HARDY QUIK-BRINER provides a better way to make crystal clear, fully saturated brine that means high-quality food products. Designed to use evaporated salt to insure a brine of top purity. Constructed from non-corrosive, reinforced fiberglass; requires no attention except for recharging salt supply.

Operates by gravity flow which is adequate for most operations, can also be equipped with pump for increased output. Will produce up to 1000 gallons of brine per hour when pumped intermittently. Holds 2000 lbs. of salt.

The HARDY QUIK-BRINER is available on low rental plan for immediate delivery. Installation is easy and quick. Your Hardy Representative or Hardy's Technical Service Department is immediately available to help solve any brine making problem.

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HARDY SALT COMPANY

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Title.....

Company.....

Address.....

City.....State.....

Green Giant Answers Migrant Workers Charge

Forty-three Puerto Rican migrant workers from Green Giant Co.'s asparagus farm at Galena, Md., charged the firm with exploitation. They complained of unsanitary living conditions, and stated that they were poorly fed and grossly underpaid.

Marvin Keil, personnel manager of the company's east central district, denied the charges categorically. He said the company had hired 610 Puerto Ricans under agreements approved by the agency of the Puerto Rican government and the U.S. Employment Service.

The agreements were as follows:

1. Minimum of 80c an hour for 160 hours' work in a four-week period. Mr. Keil said some workers earned as much as $1.54 an hour with bonus payments.

2. Men were housed in barrack-like buildings with outside latrines. Showers, washstands and laundry facilities were provided in another building. The camp was approved by the Maryland Health Dept. for 120 persons but it actually accommodated only 67, according to Mr. Keil.

3. The workers' weekly menu had been established by the Puerto Rican government and the two employing associations through which they were hired.

Mr. Keil stated that at the end of the fourth week all men were paid the full contractual wage scale, less the time lost because of illness or unwillingness to work. There are also deductions for air fare from Puerto Rico, board, health and accident insurance, Social Security and any advances.

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Robins equipment is designed to keep in vegetables the things that belong there. The most flavor . . . the appetizing color ...the delicious taste. Everything that makes sales easy. And . . . Robins equipment does it quickly, efficiently . . . profitably.

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New Tomato—Heinz 1370 To Be Available in 1962

A new tomato has been developed by the Crop Research Dept., Research and Quality Control Div., H. J. Heinz Co., Pittsburgh, Pa. Called Heinz 1370, it has been grown in the east and in Canada. Its greatest popularity is in Southern New Jersey.

A determinate vine, it tends to be symmetrical with dark green foliage. The variety is resistant to fusarium wilt, Race 1. It also possesses a high degree of tolerance to concentric cracking and bursting with resistance to radial cracking that is the same as Campbell 146. Fruit size is moderate. A typical season's average is 0.28 lbs. per fruit.

Studies have shown that if optimum internal color is to obtained fruit should be harvested at 10-14 day intervals rather than at the customary 7 day interval.

A 1959 record of production on the Clarence Parlette Farm near Genoa, Ohio, shows a yield of 29.0 tons per acre while Rutgers yielded 24.8 tons.

Seed will be made available by Heinz to seedsmen for increase in 1961 and supplies will probably be available for use in 1962.

New System Devised for Grading Tomatoes

A new system for grading tomatoes in processing plants has been developed. It features a device that accurately measures the color, and a new method of classifying defects.

The electronic colorimeter was developed by market quality researchers. It measures the color of the raw juice from the tomatoes.

The tomatoes are classified A, B, C, or Culls, depending on the amount

of defects and decay present. From the percentage of tomatoes that fall in each of these categories, the inspector will calculate a "percent usable" for the entire load.

The color reading and the "percent usable" are then combined to evaluate the load of tomatoes.

Standards that will put these grading improvements to work have been developed by the Fruit and Vegetable Div. of Agricultural Marketing Service, a USDA publication. Because the standards are a new approach to grading, they are being circulated throughout the industry this year for comments and suggestions.

The system will be used on a trial basis at some grading platforms this summer.

FMC Stresses Pickup Design of Its Tomato Harvester

In developing a tomato harvester, FMC has placed initial emphasis on the pickup mechanism. It should be able to handle the thick and heavy foliage of the tomato vines without damaging the fruit and without loosing fruit that is separated from the vine.

To accomplish these objectives, the FMC harvester uses a "live" pickup which consists of rotary discs that revolve inwardly. These discs are angularly positioned, therefore, the leading edges are extended approximately two inches under the soil. The vines are cut under the surface.

The pickup mechanism also has two convoluted rubber belts that carry the vine into the machine and onto a rod-type conveyor.

Research Resumes

NCA has asked growers and canners of tomatoes to institute a program of **Drosophila (fruit fly) control.** The association recommends treatment with pyrethrum dust as soon after picking as possible. The chemical is a product of Fairfield Chemicals, FMC Corp.

USDA reports that **rust disease** of snap beans can be prevented or cured under greenhouse conditions by a new antibiotic, Phleomycin.

Niagara Chemical Div., FMC Corp., reports that FDA has granted a **2 ppm tolerance for Thiodan insecticide.** This chemical shows an otustanding control of the peach tree borer and related pests while the fruit is still on the tree.

See this space next month for our regular every-other-month department.

Food Technology

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INDUSTRY NEWS

Companies & Plants

Butter-Nut Foods Co., Omaha, Neb., and **Duncan Coffee Co.,** Houston, Texas, have agreed to merge. Both firms are national coffee producers.

W. N. Clark Canning Co., Rochester, N. Y., is building a 160 x 100 ft. warehouse for its plant in Caro, Mich., to replace the last one which was destroyed by fire.

Borden Foods Co., New York City, has formed an international division, with James V. Bassett as executive vice president.

Gerber Products Co., Rochester, N. Y., is planning a $500,000 expansion program. A 93,000 sq. ft. area will be added to the rear of its plant. 10,000 sq. ft. will be used for production, and the rest will be used for storage.

Produce Processors, Inc., Windsor, N. C., is commercially producing precooked instant sweet potato flakes. The plant has an initial capacity of over 20 million lbs. of yams per year.

Lawrence Frozen Foods, Lawrence, Mich., processor of fruits and vegetables, recently suffered a fire at its plant which cost an estimated $100,000 in damages.

Pfeiffer's Food Products, Inc., salad dressing manufacturer of Buffalo, N. Y., has been purchased by International Salt Co., salt manufacturer

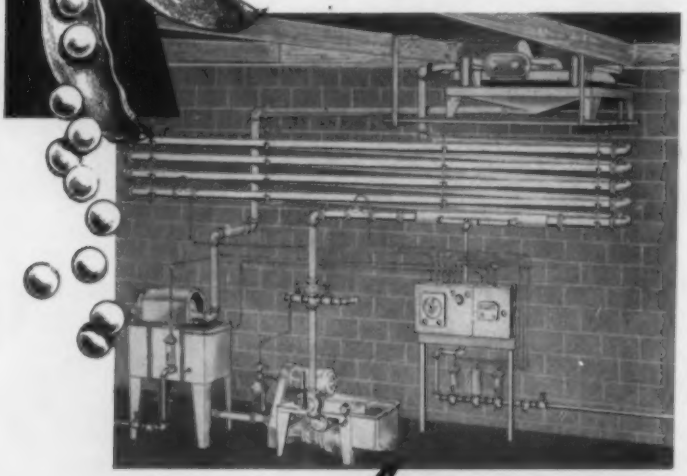
Total Sales and Net Income of U.S. Processed Food Firms

for periods indicated, to dates indicated, in thousands of dollars (000 omitted), as reported by the companies. Figures in parentheses ( ) indicate losses.

FIRM/HEADQUARTERS	BUSINESS	PERIOD	SALES TOTAL 1960	SALES TOTAL 1961	NET PROFITS 1960	NET PROFITS 1961
Wilson & Co. Inc., Chicago, Ill.	Meat products	6 mo. to 5/1	a	346,280	(677)	3,068
Nat'l Dairy Prods. Corp., NYC	Dairy, Misc. prods.	4 mo. to 4/1	418,512	440,969	10,693	10,550
Central Soya Co., Ft. Wayne, Ind.	Soybean products	9 mo. to 6/1	207,768	204,188	2,764	3,566
Duffy-Mott Co. Inc., NYC	Canned fruits, vegs, juice	8 mo. to 5/1	39,696	43,921	677	848
Flotill Prods. Inc., Stockton, Cal.	Canned fruits, vegs.	12 mo. to 1/1	23,183	22,453	175	477
General Foods Corp., White Plains, NY	Packaged foods	12 mo. to 4/1	1,087,076	1,160,177	61,071	66,821
Pet Milk Co. & Subs., St. Louis, Mo. (#)	Dairy, frozen foods	12 mo. to 4/1	190,267	195,947	3,574	3,868

a—Data not available.
(#)—Figures given for 1960 based on calendar year ending 12/30/59 while figures given for 1961 based on fiscal year ending on March 31, 1961.

Scott Hydraulic Pressure Blancher Gives you 6 Big Advantages



1. **SANITATION:** Easily sterilized within minutes . . . no sharp corners or cracks for foreign matter to collect.
2. **FLEXIBILITY:** May be installed anywhere . . . floors, ceilings or walls! Large capacity; any length of blanch.
3. **UNIFORM BLANCH:** Commodity immersed in blanching water at all times. Sensitive air operated control, designed exclusively for the tubular blancher maintains accurate water temperature automatically.
4. **CLEANER PRODUCT:** Product in clean, running water. Sprays give final rinse. Helps remove leaf and dirt particles.
5. **SHORTER BLANCHING TIME:** Commodity is blanched under pressure resulting in shorter blanching time, better color, flavor, quality!
6. **STEAM ECONOMY:** Blancher is totally enclosed . . . steam cannot escape; starting time reduced to minimum.

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of Clarks Summit, Pa. International's new subsidiary will be known as Pfeiffer's Foods, Inc.

A new 3-year lease management arrangement has been announced by **Westfield Maid Co-operative,** Westfield, N. Y., and **Seneca Grapejuice Corp.** Seneca has plants in Westfield, Dundee, Highland, Hilton, Williams, and Spartanburg, S. C.

A potato processing research laboratory to be supported by the states of North Dakota and Minnesota will be built near the site of the present federal potato research laboratory near East Grand Forks, Minn.

The **B. H. Wilson Fisheries** plant in Eastport, Me., has again started packing Maine sardines.

Men in the News

E. C. Steele has been named president of Red Wing Co., Inc., Fredonia, N. Y., producer of preserves, jellies, catsup, chili sauce.

Dr. Howard L. Stier, formerly director of the NCA division of statistics, has joined the United Fruit Co. at its headquarters in Boston, Mass.

E. M. Muldoon

G. C. Swanson

Edward M. Muldoon has been elected a vice president of Beatrice Foods Co., Chicago, Ill. He will continue as general manager of the Grocery Products Div. and La Choy Products, with headquarters in Detroit, Mich.

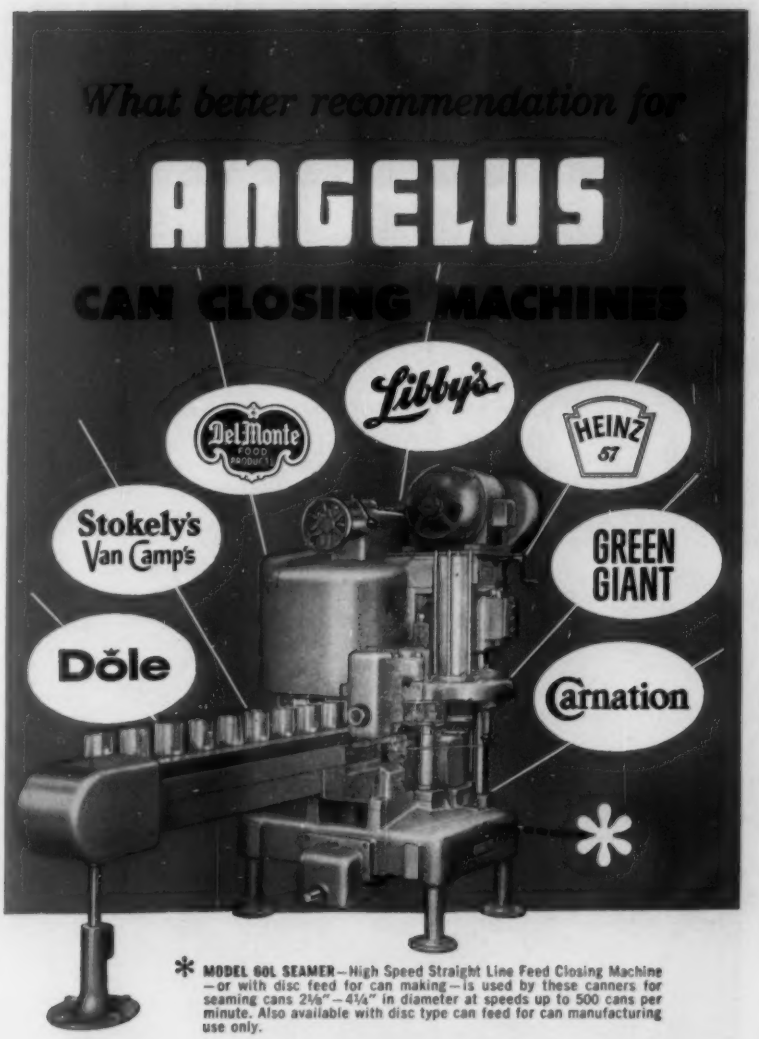
S. R. Baxley, vice president of Tom Houston Peanut Co., Columbus, Ga., has been elected chairman of the board of directors of the National Peanut Council.

Charles E. Wilson has been appointed supervisor-consumer research, Nestle Co., Inc., White Plains, N. Y.

William H. Parshall has been named manager-marketing services, H. J. Heinz Co., Pittsburgh, Pa.

Gordon A. Goodrich, assistant plant engineer, Post Div., General Food Corp., White Plains, N. Y., has been promoted to production services manager of Jell-O Minute Operations, Jell-O Div.

Wayne W. Waterstradt has been named assistant to the vice president-



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BULK HANDLERS shipping and storing fruits and vegetables under a blanket of inert gas report they can detect no degradation in a product so protected.

COFFEE, CHEESES AND MEATS . . . products dependent on freshness are now being packaged this modern way with excellent results.

SILO STORAGE of alfala under a protective gas blanket has become general practice in the farm belt.

PACKAGED GENERATION SYSTEMS have paved the way for the increased use of gas for they have brought gas prices in line where even the smaller processors can afford to produce their own atmospheres.

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marketing, Wm. Underwood Co., Watertown, Mass.

Willam W. Evans, formerly treasurer of Fall River Canning Co., Fall River, Wis., has been elected president of the firm. **R. J. Evans** has been named vice president-production; **Ken Werth,** vice president-sales; **William Merrill,** treasurer.

Donald P. Gundry has been promoted to vice president and general sales manager, Planters Peanut Div., Standard Brands, Inc., New York City.

Norman A. Butts, formerly with G. S. Suppiger Co., is now vice president-sales and marketing, of Alaga Syrup Co.—W & W Pickle Co. The firm has plants in Montgomery, Ala., and Dallas, Texas.

R. C. Henley, formerly with Carnation Co., has been appointed director of sales, Green Giant Co., Le Sueur, Minn.

Robert L. Gibson, Jr., has been elected senior vice president of Libby, McNeill & Libby, Chicago, Ill. He will continue as general manager and marketing officer of the firm's western division with headquarters in San Francisco.

S. R. Baxley

P. J. Ritter, Jr.

Gilbert C. Swanson president and chairman of the board of Butter-Nut Foods Co., Omaha, Neb., has been named a member of the board of directors, Campbell Soup Co., Camden, N. J. He replaces his brother **W. Clarke Swanson** who died recently.

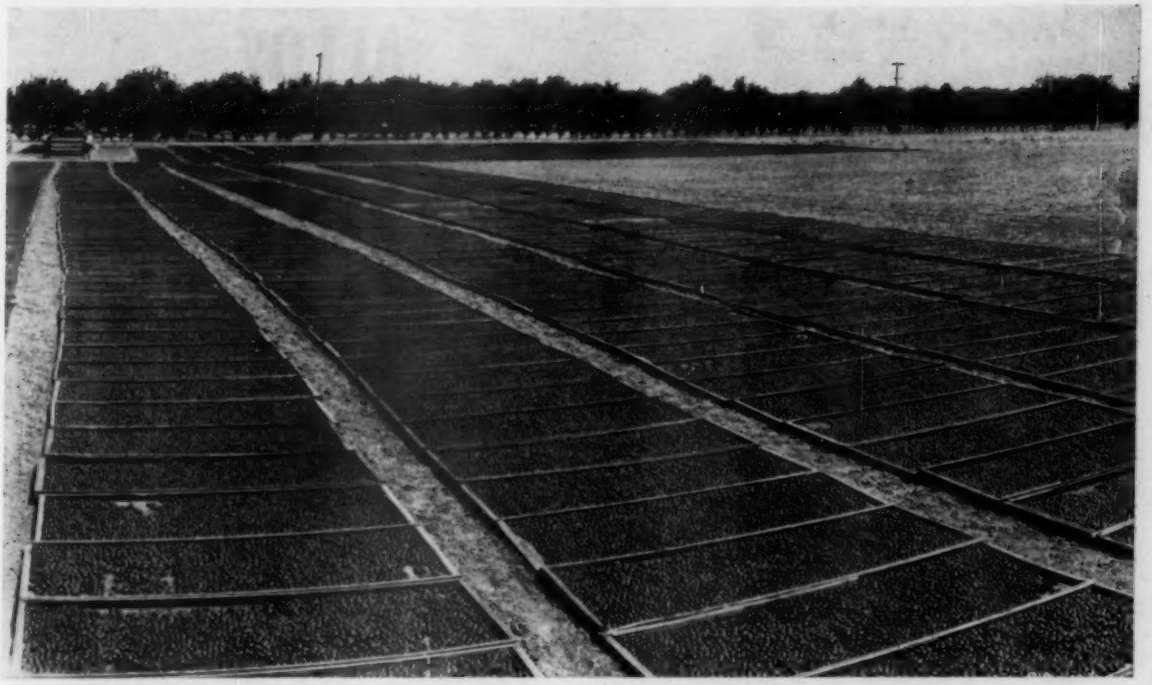
Paul John Ritter, Jr., has joined the P. J. Ritter Co., vegetable processor of Bridgeton, N. J., as coordinator in the Private Label Div.

Deaths

Harry Goodwin, 83, founder of Mother's Food Products, Inc., Newark, N. J., now a division of Vita Food Products, Inc., New York City.

William Seeman, 69, retired vice president of Seeman Brothers, food canner and wholesale grocer of Bronx, N. Y.

Harry McCartney, 80, district manager, Stokely-Van Camp, Inc., Indianapolis, Ind.



ALL DRIED PRUNES once were produced by sun-drying, as shown in this photograph taken years ago in California. Now practically the entire U.S. output of dried prunes comes from tunnel dehydrators.

Moisture is taken out by heated air forced through the stacks by large blowers. This article tells what progress has been made in converting the apricot drying industry to mechanical dehydration.

How Apricots React to Dehydration

By T. A. SCHWARZ

Sunsweet Growers, Inc.
San Jose, Calif.
and FRED S. NURY
*Western Regional Research Laboratory, Albany, California**

Experiments on dehydration of apricots confirm that quality can be improved by sunning the fruit for several hours prior to dehydration.

However, none of the dehydrated apricots were as good in color, texture or general appearance as those produced by sun-drying.

Some of the most glaring shortcomings of the dehydrated product disappeared upon rehydration; therefore, a properly processed dehydrated apricot might be acceptable to the ultimate consumer.

Attempts to dry apricots in a heated, rapidly-moving air stream rather than by sun-drying were made as long ago as 1884. Hilgard described some tests made at that time with "close driers" which were the forerunners of the dehydrators.

Many Have Experimented

During World War II, research effort on dehydration of apricots intensified because of an increasing demand for the products by the Armed Forces, a shortage of labor to produce the sun-dried fruit, and a desire to produce a dried apricot by a more sanitary method than sun-drying. Mark and Phaff (2) recommend steam blanching prior to drying to produce dehydrated apricots that would appear more like the sun-dried product. However, dehydration did not find wide acceptance in industry, mainly due to color of the final product and the higher cost of production.

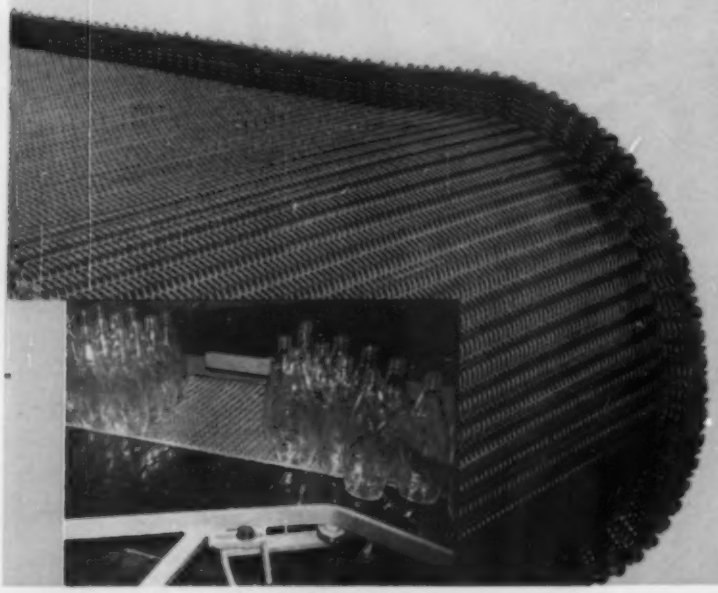
Most dehydrated apricots have been prepared by a combination process in which the fruit is exposed to the sun for 3-5 hours and then dehydrated. This process yields apricots that have an appearance better than those produced by straight dehydration, but not as good as sun-dried apricots. Very recently, Lazar *et al.* (1) have described a three-stage process, Dry-Blanch-Dry, by which dried apricots of excellent flavor are produced; this product appears to be more like sun-dried apricots than that obtained by straight dehydration.

Materials and Methods

The study reported here was conducted to evaluate and compare dried apricots produced by straight dehydration (without blanching), sunned-dehydration, and straight sun-drying. Another objective was to gain practical working knowledge in the dehydration of apricots on a scale that could be expanded to fit actual commercial conditions.

*A laboratory of the Western Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture, 800 Buchanan Street, Albany 10, California.

Over 3000 conveyor users in the West specify



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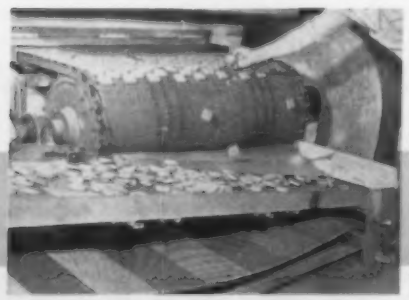
For material handling such as bottle loading-unloading, belts sometimes must be crimped to a 180° angle, travel at high speeds and be designed to minimize bottle friction.

Some conveyor installations require belts specifically designed for extreme conditions of quick freezing and corrosion. Processing of prunes is an important application of custom designed conveyor belts.



High operating temperatures is an important factor in some belt applications. Shown here is a standard belt designed to carry dog biscuits through a recirculating oven.

You can depend on an Alloy Wire belt to meet your specifications. If your conveyor system operates under unique or standard conditions of load, temperature range and corrosion, a belt will be made to fulfill your requirements!

Users of Alloy Wire Belt Co. products cover a remarkably wide range of industries and processes:

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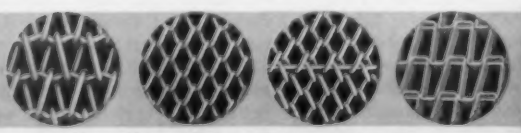

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In all, about five tons of apricots (fresh basis) were used. Fruits were hand-cut, placed on trays (cups up), and sulfured at a rate of about 4 lbs. sulfur per 26-tray car, or about 8 lbs. per ton of fresh fruit. Four hours in the sulfur house were sufficient, but several lots were held overnight in the closed sulfur houses to determine the effect of prolonged exposure on the end products. Some lots of fruit were dipped in 3.0% SO_2 solution for periods ranging from ½ minute to 10 minutes. Sulfur dioxide analyses were made by the iodometric method of Nichols and Reed (3).

Several lots of fruit were allowed to remain in the sun from 2½ to 4 hours prior to dehydration to determine the effect of sunning on the appearance of the end product. A few lots were completely sun-dried.

Dehydration was carried out in a co-op tunnel dehydrator at temperatures of 115° and 155° F. for periods ranging from 24 to 8 hours.

To observe the effect of subsequent processing by normal commercial procedures, some dehydrated, sun-dried, and sunned-dehydrate apricots were cleaned, hydrated to 25-30% moisture, sulfured, and sorted.

Sulfur dioxide content of apricots after various treaments

Time in Sulfur House	Time Sunned	Temp.	Dehydration Time	Sulfur Dioxide after Dehydrating
hours	hours	° F.	hours	ppm
4	4	155	9	1820
4	2½	155	9	3020
4	3¼	155	8	2380
4	none	155	9	2720
3½	none	150	10	2140
overnight	none	115	22	3830
overnight	none	115	24	3370
overnight	none	115	24	4880
overnight	none	115	21	3850
overnight	none	115	24	4350

Results and Observations

Dehydrated apricots differed from sun-dried products in:

(1) General appearance: Dehydrated apricots were a mixture of good, bad and indifferent. The heterogeneity was apparent within an individual piece as well as among individual halves. By contrast, sun-dried fruit looked homogeneous and, for that reason alone, was appealing.

(2) Color: Sun-dried apricots were deep orange with a faint purple hue which deepens the color. Because of the fine dense texture and glossy cut surface of the fruit, the color was bright and luminous. Dehydrated apricots were light-orange to lemon-yellow. The red color component found in the sun-dried product was absent and the degree of brightness was very low, giving the dehydrated fruit a chalky appearance.

(3) Texture: The dehydrated apricots were more porous and spongy than the sun-dried product and, for this reason, were more readily dehydrated. The dehydrated fruit had a more irregular outline and wrinkled back, with a deeper depression in the pit cavity than the sun-dried apricots.

Sulfuring Procedures

Four hours of sulfuring were sufficient for the apricots in this study. However, in the lots which remained in the sulfur houses overnight there was far better penetration, without excessive bleeding, which resulted in higher SO_2 retention after dehydration.

It was found that dipping fruit in SO_2 solution would require too much time in commercial operation, if sufficient sulfur dioxide for a complete sulfuring operation was to be absorbed. A short dip of the whole apricots, however, has considerable merit in retarding deterioration when the fruit is to be held in box storage for several hours prior to dehydration.

Unmasking the Faults

Fruit sunned for four hours looked considerably better when dehydrated than the unsunned fruit. As the sunning period became shorter, the effect was less striking.

Dehydration exaggerated the undesirable qualities of apricots which were green or otherwise inferior when fresh. Uniformly soft and ripe fruit was a prerequisite for a successfully dehydrated product. Since maturity of the starting material bears this important effect on the quality of the end product, some preconditioning of the raw material by artificial ripening may prove advisable.

Hydration of dehydrated apricots had a marked effect on the appearance of the final product. When the dehydrated fruits were hydrated to high moisture (about 30%), the brightness and general appearance improved considerably to give what was judged to be an acceptable product; the reconstituted products appeared to have lost most of the shortcomings mentioned above.

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Confectionery Prunes

Mayfair Packing Co., San Jose, Calif., is using newly designed packages for its Farmkist "Tenderiffic" Prunes. The prunes have been prepared for direct-from-the-bag eating. There are six variations of the rotogravue-printed packages with differing vignettes. The bags are made of cellophane with a polyethylene extrusion coating. The package also suggests a variety of uses for the prunes which are available in chain stores and independent and cooperative outlets. Supplier & Designer: Milprint, Inc., Milwaukee, Wis.

Apricot Drink

Richmond-Chase Co., San Jose, Calif., has introduced a new Apricot Drink enriched with Vitamins C and A which is being distributed nationally and marketed under the R-C brand label. Supplier & Designer: Muirson Label Co., New Haven, Conn.

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Vegetable and fruit canners and packers now using the Caustic Soda peeling method find this is faster, more economical and therefore more profitable than other peeling methods.

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PENNSALT Caustic Soda is available in three forms . . . flake, solid and liquid

Please feel free to ask our Technical Service Engineers for suggestions and information on the Caustic Soda method of potato skin removal. Write to Industrial Chemicals—West, PENNSALT CHEMICALS CORPORATION, Tacoma 1, Washington. Ask for Pennsalt Technical Bulletin P1011.

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AFDOUS Adopts 0° Code For Model Frozen Food Law

Industry group wins concessions on rigid enforcement and bacteria standards

The AFDOUS code was adopted by Assn. of Food & Drug Officials of the United States at its June meeting in Washington, D. C., but in part only, and with some modifications.

The result of the several-year campaign on behalf of the plan, therefore, can be said to represent reasonable success on the part of both the regulatory officials making up the AFDOUS membership, and also on the part of the frozen food industry they have proposed to regulate.

The industry's point of view—which has been backed up strongly by the research work of government agencies and others—has been that control of the temperature of frozen foods is a function of quality protection and not health hazards, and that it is only one factor in quality, sharing the spotlight with the basic raw product, time of storage or exposure, packaging and other key considerations. As such, the All-Industry Committee headed by Dr. H. C. Diehl of Trans-American Refrigerated Services has pointed out, temperature regulation is a matter for industry rather than government concern.

AFDOUS members have been somewhat divided in their opinion on this position, judging from the last several annual meetings. One group has tended to agree with frozen food packers and handlers that regulatory people have the right to suggest and discuss temperature control, but not to regulate it officially. The other school has been unchanging in its determination to see a zero-or-below model code adopted, and in its enthusiasm to urge adoption of this code at state and local levels.

The campaign for the code has had the effect of attracting the attention of many frozen food handlers and sellers to poor practices in their operations, and thus has been the means of voluntary industry improvement, under the leadership of the industry committee. And the zero code was adopted at Washington. In these two respects, the most radical of the AFDOUS group can feel they have won a victory.

However, the code establishes certain tolerances which were not in the original model, and apparently will be considered permissive rather than mandatory by a good many of the association officials. To this extent, it constitutes an achievement for the Frozen Food All-Industry Coordinating Committee.

Notably, also, there are no provisions in the code regarding maximum bacteria counts or other similar matters. This is a further compliment to the frozen food industry, in that it is a recognition of the packers' position that bacteriological standards must be carefully evolved after suitable research, and that there are existing national governmental agencies and laws under which proper regulation can be undertaken.

"What further steps AFDOUS may take in the future, either in the fields of temperature or of bacteriology," commented one frozen food industry member in evaluating the situation,

ABC customer service includes:

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"is up to us. If we police our own affairs well, they will have no excuse for interfering.

"In addition, we need to keep in close touch with local regulatory officials, to let them know what we are doing to keep our house in order, and to assure them that no crisis exists in our industry."

Companies and Plants

International House of Pancakes, which operates 20 pancake restaurants in Los Angeles, Calif., has introduced a packaged pancake mix to the retail trade. The product's carton, shaped and printed to represent a cottage, recently won an award at the Folding Paper Box Assn. competitions.

Kubla Khan Food Co., Portland, Ore., frozen Chinese food firm, has announced plans for erection of a new plant.

Sunsweet Growers, dried fruit cooperative of San Jose, Calif., has recently made additions to its packaging equipment. New carton machinery has been installed at the Napa and San Jose plants.

Pacific Vegetable Oil Corp., San Francisco, Calif., manufacturer of vegetable oil, has leased the large Spencer-Kellogg vegetable oil processing plant in Long Beach, Calif.

Wolf's Chili Mfg. Co., Denver, Colo., has filed articles of incorporation to own, operate and maintain a canning business for canning all types of foods, including chili and tamales.

Lion Packing Co., raisin packer of Fresno, Calif., has installed a new Clybourne carton former, filler and sealer.

Nalley's, Inc., Tacoma, Wash., specialty food processor will acquire all outstanding capital stock of F & L Food Products Co., Colorado Springs, Colo., and its wholly-owned subsidiary, Colorado Potato Flake and Mfg. Co. of Denver. F&L will operate as a subsidiary corporation with F. James Lynch, Jr. as president. Mr. Lynch will also become a vice president of Nalley's.

Peloian Packing Co. has made extensive improvements in its raisin plant at Dinuba, Calif. Permanent storage facilities have been erected for 7,000 tons of fruit, and the balance of the tonnage is now stored in permanent roofed-over areas with Sisalkraft protection. Within the plant, a new inspection system has been set up, with four belts in parallel to insure that no more than one layer of fruit passes the inspectors at a time. The company also has added a new Package Machinery Co. polyethylene bag forming, filling and sealing machine.

Pacific Olive Co., Visalia, Calif. has installed a complete new line for its tumble-pack green olives in glass. A new double-line stainless steel table for place-packing green olives has also been set up. The specialized olive equipment was supplied by Solbern Mfg. Co. Total cost of the improvements is in excess of $100,000.

La Victoria Foods, Inc., packer of canned and glassed Latin-type foods, has moved into its new plant in Los Angeles, Calif.

Men in the News

Olan Conover, formerly with Seabrook Farms Co., is now plant manager at Santa Clara, Calif., for Santa Clara Frosted Foods Co.

Philip L. Lanzit, who joined his company in 1920, has retired as Pacific North division salesmanager for Calif. Packing Corp., San Francisco, Calif. **A. Clifford Wilson,** formerly sales director for the Pacific Central and South divisions, has been named division sales director for the new Pacific Coast division, he has been with Calpak since 1926.

Tak Higuchi, who has been head of the Processing Strawberries Board at Watsonville, Calif., has also assumed management of Ollalieberry Advisory Board, whose offices have been moved from San Francisco to Watsonville. The Ollalieberry is a domesticated version of a species of wild backberry from the Columbia River area.

Kenneth R. Rankin, sales executive with John Inglis Frozen Foods, Modesto, Calif., has taken on a second position—that of president of Frozen Institutional Sales Co.—and has established his offices at 15 California St., San Francisco, Calif. The organization handles institutional selling for Inglis and also for four other frozen food processors.

William Heinz, Bonner Packing Co., Fresno, Calif., has been named president of the dried fruit industry's Plant Superintendents Assn. **Carl Chooljian,** Del Rey Packing Co., is the new secretary-treasurer. Gearhart Ipsen served as president last season.

Robert E. Moss, formerly salesmanager of Woods Cross Canning Co., Clearfield, Utah, has been named general manager. Alvin Moss continues as president.

E. L. Motley, Sunnyside, Wash., has succeeded R. S. Durkee as president of Wash. Canners Cooperative, grower-owned organization with plants at Vancouver and Yakima, Wash. **Laurence Jones** continues as general manager.

Everett Runyon, director of advertising and promotion at Calif. Packing Corp., San Francisco, was recently named president of Aspargus Club, a group founded in 1909 and composed of (a) executives of food associations affiliated with Natl. Assn. of Retail Grocers of the United States, (b) retail grocers whose local associations are NARGUS affiliates, and (c) grocery product manufacturers. Active membership is limited to 99, but there are many additional honorary members.

Col. Richard L. Lewis has succeeded Col. Karl S. Thornberg as commanding officer of the Seattle, Wash., regional headquarters of U. S. Military Subsistence Supply Agency. The office buys all the canned salmon taken by government agencies, and is the local food supply center for Washington, Oregon, Idaho, Montana and Alaska.

Edward Diebert, production manager of Clovis Fruit Co., raisin packer of Clovis, Calif., was seriously injured in an automatic accident not far from his home on July 1. As this is written, he was still not out of danger.

Edward Schwartz has joined Fresno Cooperative Raisin Growers, Fresno, Calif., as manager. Coming originally from New York, he has been engaged in accounting and credit work in the Fresno area since 1946. Henry Bengel and Jake Heinrich are president and secretary, respectively, of the cooperative. Mr. Heinrich reports that the firm has ceased to pack raisins in cartons, and hereafter will specialize in 30-lb. bulk cases.

William R. Leigh has joined Pacific Olive Co., Visalia, Calif., as director of research and quality control. He had been in a similar position with V. R. Smith Olive Co., Lindsay, Calif.

J. Robert Webster, for many years food technologist and engineer with Lindsay Ripe Olive Co., Lindsay, Calif., is now plant superintendent. **Robert Baymiller** has assumed the duties of chief food technologist.

A. G. Westly has been named secretary of Dole Corp., San Francisco, Calif., a subsidiary of Castle and Cooke, Ltd. **Thomas J. Andre** has been promoted to field sales promotion manager of Dole.

A. Clifford Wilson has been named Pacific Coast sales director, California Packing Corp., San Francisco,

Calif. He will direct sales for Del Monte foods.

Lorne J. Campbell has been appointed Western Division purchasing agent for Libby, McNeill & Libby. Mr. Campbell will headquarter in San Francisco.

R. A. McGregor

M. D. Heeger

Robert A. McGregor, a consultant to the Bureau of the Census in 1960, will transfer from Washington, D. C., to Sacramento to become California's vegetable statistician. He will head *Vegetable Crop Notes,* a semi-monthly publication of the California Crop and Livestock Reporting Service.

Michael D. Heeger has been appointed marketing director of Nalley's, Inc., Tacoma, Wash. He will supervise and be responsible for the coordination of all sales and advertising activities.

R. Fullerton Stuart, assistant manager, Frozen Foods Div., Carnation Co., Los Angeles, Calif., has been named a director, replacing his brother E. Hadley Stuart, Jr., who resigned. **Dwight L. Stuart,** assistant vice president—sales, Grocery Products Div., has been named to the executive and finance committee.

Gordon P. Hatcher has been appointed sales manager—frozen foods, Western Div., Campbell Soup Co., Camden, N. J., with headquarters in Pasadena, Calif. **Ronald T. Cappadocia** was appointed district manager —frozen foods in Los Angeles.
Suppliers News—

Floyd Pool, Jr., and **Ben Kristopeit** have been appointed vice presidents of Spray-Continental Coffee Co., Denver, Colo. The firm was established through a merger in 1959 of Continental Coffee Co., Chicago, and Spray Coffee & Spice Co., Denver.

Orrin G. Enders, Pacific salesmanager for Quaker Co., Chicago, Ill., has retired after 47 years with his firm. Mr. Enders started with his firm in Chicago in 1914, and became part of the Pacific Coast sales organization in 1923.

Deaths

James A. Finley, 58, general manager, Orange Products Div., Sunkist Growers, Inc., Los Angeles, Calif.

Space Age World's Fair Will Feature Foods

Century 21 Exposition will open in Seattle, Wash., April 21 for a six-month run, and its 74 acres of exhibits and concessions will include many items of interest to processed food packers. The event is being sponsored jointly by the U. S. Government, the state of Washington, the city of Seattle and the Century 21 Corporation.

Five "World's" will be featured in the first world fair to be held in the United States since 1939—science, commerce and industry, art, entertainment and Century 21. Scientific developments applicable to food manufacture, and a panorama of new food products, will be exhibited in some of these. In addition, avenues connecting the five worlds will be lined with shops, many of which will sell domestic and imported foods, or will incorporate them in restaurant meals.

Special space-age features will include a $4.2-million high-speed monorail line which will connect the fair with down-town Seattle, 1.2 miles away, and a simulated journey through the solar system in the world's first "spacearium."

Tech. Grads Join Packers

Twelve young men were graduated from Oregon State University's food and dairy technology course, and a number have joined processed food firms. The list includes:

Dennis F. Allen—Birds Eye, Woodburn, Ore.

Peter Ferris—Birds Eye, Woodburn, Ore.

Douglas R. Hadley — Calif. Packing Corp., San Francisco.

James G. Palmquist — Carnation Co., Van Nuys, Calif.

Fred C. Michael—Ore-Ida Foods, Ontario, Ore.

William H. Root—Gerber Products Co., Oakland, Calif.

In addition, Victor R. Carlson has joined Cherry-Burrell Corp., food equipment firm of Cedar Rapids, Iowa.

Of the remaining five, four are either continuing their studies or joining the U. S. armed forces, and the fifth is still "considering several offers.'

Packers Offers Scholarships

Five $300 scholarships have now been offered by Pacific Northwest processed food firms to students who will study food technology at Oregon State University, Corvallis, Ore.

Two have been provided by Stayton Canning Co., and one each by Lamb-Weston, by Northwest Packing Co., and by Associated Blue Lake Green Bean Canners.

Four of the ten scholarships avail able nationally through Institute of Food Technologists have also been awarded to Oregon high school graduates planning to study at OSU.

Danenberg Testimony Available

The sworn testimony of Danny Dannenberg, president of the Western Growers Assn., given before the Committee on Equipment, Supplies and Manpower of the 87th Congress of the United States has been reprinted by Seed Research Specialists, Inc., P.O. Box 3091, Modesto, Calif. It is available from SRS at no cost.

Northwest Frozen Pack Up

Production of frozen fruits and vegetables in Washington-Oregon totaled more than 624 million lbs. in 1960, compared with 609 millions in 1959. Washington's pack gained 26 million lbs., while Oregon's was down 11 millions.

Boards & Committees

The Cling Peach Advisory Board has recommended to the State Director of Agriculture to issue an Order for a 12% "green drop" of immature

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fruit. The forthcoming crop is estimated at 680,000 gross tons—10,000 tons over an earlier estimate.

Calif. Prune Advisory Board, San Francisco, will spend $300,000 in domestic advertising in the year starting August 1, 1961. Some 62% will be spent for advertising in womens magazines and for participation with other national advertisers campaigns, and 38% will go for food trade papers. In addition, $63,000 will be expended for merchandising work, $50,000 for export advertising, $55,000 for public relations, $45,000 for research and miscellaneous, and $47,000 for administration.

Harvest Union Drive Killed For Lack of Interest

Agricultural Workers Organizing Committee—the group financed by the AFL-CIO and active the past year and a half in attempts to unionize farm harvest labor—is going out of business.

George Meany, president of AFL-CIO, revealed that AWOC secured only 3,500 members at the peak of its effort, and that only 1,500 of them paid dues. This left the entire burden of the operation on the national union organization, and it is no longer interested in carrying that responsibility.

The Stockton, Calif. office of AWOC (center of the main effort of the group) is scheduled to be closed at the end of this summer.

Olive Industry Sponsors Research on Harvester

The Olive Advisory Board has chosen two organizations to work on the development of technical and mechanical equipment for harvesting olives. Armour Research Foundation and the University of California, College of Agricultural Engineering, were voted on unanimously by the board after a nation-wide screening of leading organizations.

According to Daryl Hutchins, board manager, the U of C will work on current programs on an accelerated basis. Armour will work on a "crash" program which will test the feasibility of a radically different method of mechanical harvesting. A prototype of the machine will be built which can be tested by September, in time for this years' crop.

News of Western Suppliers

Men in the News

Allan E. Katz has been appointed executive vice president of F. Ritter & Co., manufacturer of flavors and essential oils of Los Angeles, Calif.

J. R. Carr

K. G. Mattice

J. R. Carr has been appointed manager of American Can Co.'s plant in San Jose, Calif. He succeeds **J. G. Griffin,** who has been transferred to the company's plant in San Francisco.

K. Gene Mattice has been named manager of Northwest sales, C and H Sugar Refining Corp., San Francisco, Calif., with headquarters in Seattle, Wash.

Dr. Roger Lueck, vice president of American Can Co., New York City, has been elected to the board of directors of Dole Engineering Co., manufacturer of processing equipment in San Francisco, Calif.

John Sherman has been named a marketing specialist in Exempt and Perishable Commodities Service for Consolidated Freightways, trucking firm of Menlo Park, Calif.

Companies & Plants

Arabol Mfg. Co., industrial adhesive producer of New York City, has opened a new plant in Portland, Ore., to service the Pacific Northwest. Spencer Tilden, vice president in charge of the Pacific Coast Div., with headquarters in San Francisco, will be in charge of the plant.

Pacific Fruit Express, San Francisco, Calif., is purchasing 400 40-ft. refrigerator trailers. This purchase will enable the firm to enter into the piggyback rail field to serve western fruit and vegetable growers and shippers. They are expected to be in service by early fall.

Stecher-Traung Lithograph Corp. has established a folding carton department at its western division plant in San Francisco, Calif. According to Ralph J. Wrenn, president, the action was a result of an increasing demand for multi-color folding cartons for the packaging of western products.

Not "Boil-in-Bag" or "Aqua-Pack"

The Modern Foods Council, an organization of processors who pack foods in heatable containers, decided in March at the annual meeting of the National Assn. of Frozen Food Packers, that "Aqua-Pack" was a better generic name for its type of product than the more descriptive but clumsy "Boil-in-Bag."

Since then, there have been second thoughts due to an unforeseen problem. The name has been tied up by a private firm, according to George M. Otto, executive director of the Council. Mr. Otto is currently using "heat-in-pouch" and is toying with the "heat-in-pack" for containers that are film or foil, flexible or rigid, and with foods that may be heated, cooked or boiled. The perfect name, both descriptive and colorful, still is eluding the Modern Foods Council.

Can Maker Designs A Safer Ham Container for Housewives

Housewives complaints about cut fingers on open ham cans have caused can makers to search for a new metal container. After 18 months of research, American Can Co. believes it has come up with a safer container.

According to Edward Hoffman, chief of marketing-metal containers, the new can will be available to meat packers about December 15. It will appear in retail stores early next year.

The new container will maintain the familiar pear shape of ham containers. It will be opened with a key which winds up a scored tear strip which according to Mr. Hoffman can be done more easily because the strip is repositioned and has guard rails. Instead of having a sharp edge, the can's exposed rims are rolled to prevent finger-slicing.

10 Million Homes Get 40 Million Cups of Coffee

A food sampling campaign with national coverage was carried out by General Foods Corp., White Plains, N. Y., for its new improved blend of instant Sanka coffee. Ten million 4-cup envelopes found their way into 10 million homes.

The envelopes were handled as inserts in two magazines: TV Guide and Everywoman's Family Circle.

General Foods had a two-fold problem in achieving the end result. A sampling package that could withstand the rigors of magazine binding and distribution had to be developed. And secondly, the production directors of the two magazines had no experience in handling this type of insert.

Both problems were solved successfully. In late April and early May, the two magazines carried the sample pouch and a coupon worth 10c towards the purchase of Instant Sanka.

Sanka's sampling effort was the high point of an intensive 10 week introductory campaign. This was launched in early March through daily newspapers, Sunday supplements, television, and trade and consumer promotion. The cost exceeded $2 million.

Following the sampling campaign, the company continued its advertising campaign by sponsoring a high ranking weekly TV show, and with full-page, full-color *LIFE* magazine advertisements.

Homemakers Will Be Asked About Use of Mushrooms

Some 20,000 homemakers are being questioned in a national consumer survey as to their age, income, family size as well as how often mushrooms are used and served with foods. The survey is being conducted by the University of Delaware with grant funds from the American Mushroom Institute and the Mushroom Canner's League.

The results of the survey will be used as a guide by mushroom processors, packagers, and trade organizations in revising their sales and promotion programs.

The finished report will include national and regional summaries. It will be available to anyone who is interested. The project is scheduled to be completed the latter part of the year.

Merchandising Memos

A set of bullfight scenes 19″ x 34″) valued at $15.00 will be available for $1.00 and two labels from any product of Gebhardt Mexican Foods, San Antonio, Texas.

A revolving display at Atlanta's air terminal is built around Filler Products Co.'s national theme—**"If It's a Snack—The House of Filler Makes It."** The display is a house made entirely of snacks manufactured by Filler. Also in the display case are Filler products in cans, glass and bags.

See this space next month for our regular every-other-month department.

Association News

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FOR SALE: 1961 Sweet Corn Seed, 50 HP motor & starter, Hume Pea Harvester, 2 Clipper Pea Cleaners, Bagby Filler with Stainless Hopper. W. E. Bittinger Co. Hanover R. D. #5, Pa.

FOR SALE—York Hi K Water Cooler and Frick 9 ×x 9 Compressor with 50 HP motor & starter. W. E. BITTINGER CO. Hanover R. #5, Pa.

For Sale—Kettles, Tanks, Labelers, pumps, fillers, filters, mixers, vacuum pans, case gluers and sealers, cappers, etc. Address all inquiries and send list of surplus equipment. Ace Equipment Co., 6825 S. Kenwood Ave., Chicago 37, Ill.

FOR SALE—3000 gal. Stainless Steel horiz. sanitary milk tanks. Buflovak stainless steel double-effect evaporators, 1000, 800, 600 sq. ft. (6) 36" Aluminum Filter Presses. French Oil type 2-S screw extraction press. 4,500 gallon vertical, 5,700 gallon horizontal stainless steel tanks. Buflovak 42" x 120" double drum dryers, ASME 160# WP. York Freon 12 compressor 6¾ x 5, 40-ton. 200-gallon sigma mixers, Hope piston filler. SEND US YOUR INQUIRIES. PERRY, 1405 N. 6th St., Phila. 22, Pa.

FOR SALE—20 Stainless Steel Tanks, from 500 to 4000 gal., vertical and horizontal, some agitated, atmospheric or vacuum type. Specify your requirements; Fifteen stainless steel Single and Double Effect Evaporators 67 to 1785 sq. ft.; Thirteen stainless steel Heat Exchangers 25 to 250 sq. ft.; 3'x15' Stokes stainless steel Rotary Vacuum Dryer; Roll Dryers; Vacuum Pans; Homogenizers; Plate Exchangers. Best Equipment Company, 1737 W. Howard St., Chicago 26, Ill. AMbassador 2-1452.

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1 Model 11 Shuttleworth flour-lane can unscrambler, adjustable, used less than ninety days, A-1 condition. Price, F.O.B. Tampa. $1500.00. Miller-Lenfestey Supply Company, P.O. Box 3384, Tampa 1, Florida.

1—FMC 10-Packet Bronze M&S Filler set for #303's. Very good condition. Reasonable, Princeville Canning Company, Princeville, Illinois. Phone DU 5-4328.

FOR SALE—Horix rotary SS 14 valve filler, varidrive. Manton-Gaulin SS Homogenizer, 5 HP motor. Walker Wallace SS Plate Pasteurizer. Equipment in excellent condition. Allied Equipment Co., 2111 Gundry Ave., Long Beach 6, Calif.

BUSINESS OPPORTUNITIES

FOR SALE: Pickle plant located in New England. Fully equipped for the complete pickle line. The Finest trade in New England. Owner wishes to retire. Box 1761.

Belgian fruit growers of apples, pears, plums, cherries and berries, would set up a new canning plant. Collaboration with an American firm is wanted for the technical know-how. Good possibilities, both in Belgium and in the Common Market (especially for applesjices, applesauce, cherries). Please write to Mr. Paul NICOLAI C/O HESBANIA, Stationsplein 61, Sint Truiden—Belgium.

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WANTED: 1 closing machine, either American 0-8 or Continental PDS equipped to run #10 tins, complete with topper and preferably steam flow or steam jet.
Owatonna Canning Company, Owatonna, Minnesota

WANTED: Apple Line or Peelers & Slicers in good condition. Apply Box 2761.

HELP WANTED

WANTED—Man completely familiar with canning and packing house industry accounting. $600.00 per month starting wages. Opportunity for fast advancement. Write B. Hill, President, Hill Packing Co., Topeka, Kansas.

WANTED—Supervisors to manage production and packaging of food products for large Western firm. Experience in chips, mayo, helpful but not essential for really sharp, aggressive and alert production men. Top pay, benefits and future for right men. Exceptional opportunity. Reply must include employment history, education and salary requirements. Write Box 1861.

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COMING EVENTS CALENDAR

August

20-23—**National Fancy Food & Confection Show**, Hotel Astor, New York City.

28-29—**American Soybean Assn.**, 41st annual convention, Claypool Hotel, Indianapolis, Ind.

September

11-13—**Biennial Symposium on Foods**, Oregon State University, Corvallis, Ore.

17-22—**Short Course in Plant Layout, Warehousing & Shipping**, presented by University of Calif., Lake Arrowhead Conference Center, San Bernardino Mountains, Calif.

18-19—**Pet Food Institute**, annual meeting, Drake Hotel, Chicago, Ill.

19-27—**World International Conference on Fish in Nutrition**, Washington, D. C.

21-23—**National Fisheries Institute**, executive committee and directors meeting, Kenwood Country Club, Washington, D. C.

23-25—**First National Culinary Arts Exposition**, Convention Hall, Miami Beach, Fla.

26-27—**Research & Development Associates**, military-industry conference, La Salle Hotel, Chicago, Ill.

26-28—**Institute of Sanitation Management**, 6th annual sanitation maintenance show, Hotel Sheraton, Philadelphia, Pa.

October

9-10—**National Pickle Packers Assn.**, meetng, Drake Hotel, Chcago, Ill.

18-20—**Packaging Institute**, 23rd annual national packaging forum, Biltmore Hotel, New York City.

19-21—**Florida Canners Assn.**, 30th annual convention, Diplomat Hotel, Hollywood-by-the-sea, Fla.

29-Nov. 1—**National Agricultural Chemicals Assn.**, 28th annual meeting, The Homestead, Hot Springs, Va.

November

1-2—**Packing Assn. of Canada**, 10th Canadian national packing exposition, Automotive Bldg., Exhibition Park, Toronto, Canada.

5-8—**National Frozen Food Assn.**, annual convention, Americana Hotel, Miami, Fla.

7-10—**Packaging Machinery Manufacturers Inst.**, 1961 show, Cobo Hall, Detroit, Mich.

13-14—**Wisconsin Canners Assn.**, annual meeting, Schroeder Hotel, Milwaukee, Wis.

15-17—**Indiana Canners Assn.**, annual convention, French Lick, Ind.

20-21—**Pennsylvania Canners Assn.**, 47th annual convention, Yorktowne Hotel, York, Pa.

20-21—**Michigan Canners' and Freezers' Assn.**, fall meeting, Pantlind Hotel, Grand Rapids, Mich.

27-28—**Ohio Canners & Food Processors Assn.**, 54th annual convention, Commodore-Perry Hotel, Toledo, Ohio.

December

5-7—**Institutional Food Manufacturers Assn.**, annual meeting, Edgewater Beach Hotel, Chicago, Ill.

5-8—**New York State Canners & Freezers Assn.**, 76th annual convention, Hotel Concord, Kiamesha Lake, N. Y.

January

8-9—**Northwest Canners & Freezers Assn.**, annual convention, Olympic Hotel, Seattle, Wash.

11-12—**Canners League of California**, 39th annual fruit & vegetable sample cutting, Fairmont Hotel, San Francisco, Calif.

19-20—**National Preservers Assn.**, annual meeting, Galt Ocean Mile Hotel, Ft. Lauderdale, Fla.

21-24—**National Canners Assn. & Canning Machinery and Suppliers Assn.**, Americana Hotel, Bal Harbour, Miami Beach, Fla.

February

11-13—**Canadian Food Processors Assn.**, annual convention, Bayshore Inn, Vancouver, B.C., Canada.

Merchandising Calendar

Sept. 1-30: Natl. Better Breakfast Month (Cereal Inst., Inc., 135 S. LaSalle St., Chicago 3, Ill.).

Sept. 14-23: Internatl. Tuna Week.

Sept. 18-25: Cranberry Harvest Festival (Edaville Railroad, Rupe Wunschel, South Carver, Mass.).

Sept. 25-Oct. 1: 100% Pure Maple Syrup Week (100% Pure Maple Syrup Insti., St. Johnsbury, Vt.).

Oct. 1-31: October Cheese Festival (Amer. Dairy Assn., 20 N. Wacker Dr., Chicago 6, Ill.).

Oct. 1-31: Yambilee (La. Sweet Potato Commission, P. O. Box 132, Opelousas, La.).

Oct. 1-31: Natl. Rice Harvest Festival (Rice Consumer Service, Realty Bldg., Louisville 2, Ky.).

Oct. 9-15: International Pizza Week (International Pizza Club, Box 213, New York, N.Y.).

Oct. 15-30: Kraut Pork & Apple Dinner Season (Natl. Kraut Packers Assn., 202 S. Marion St., Oak Park, Ill.).

Oct. 16-22: Fish'n Seafood Parade (Fish' n Seafood Promotions, Div. of Natl. Fisheries Inst., 1614 20th St., N.W., Washington 9, D. C.).

Oct. 17-23: Fish'n Seafood Week (Natl. Fish'n Seafood Week, Natl. Fisheries Inst., 1614 20th St., N.W., Washington 9, D. C.).

Oct. 19-28: Natl. Macaroni Week (Natl. Macaroni Inst., 139 N. Ashland Ave., Palatine, Ill.).

Oct. 20-Dec. 25: Traditional Dessert Promotion (Amer. Bakers Assn., 20 N. Wacker Dr., Chicago 6, Ill.

Oct. 23-28: Natl. Honey Week (Amer. Honey Inst., 114 N. Carroll St., Madison 3, Wis.).

Nov. 15-Dec. 31: Holidays are Pickle Days (Natl. Pickle Packers Assn., 202 S. Marion St., Oak Park, Ill.).

Nov. 19-25: Asparagus Week (New Jersey Asparagus Industry Council, Inc., Centerton, N. J.).

Dec. 1-31: Egg Nog Month (Theodore R. Sills & Co., 39 S. LaSalle St., Chicago 3, Ill.).

I.F.T. Sections Calendar of Meeting Dates

Western

No. Calif.: No meeting this month.

Puget Sound: No meeting this month. Next one will be held this fall.

Rocky Mountain: No meeting this month.

So. Calif.: No meeting this month.

Midwest

Chicago: No meeting this month.

Great Lakes: No meeting this month.

Kansas: No meeting this month.

Ohio Valley: No meeting this month.

St. Louis: No meeting this month. Next meeting will be held in September.

Wisconsin: No meeting this month. Next meeting will be held September 29.

Eastern

Maryland: No meeting this month.

Mohawk Valley: No meeting this month. Next meeting will be held in September.

New York: No meeting this month.

Northeast: No meeting this month.

Philadelphia: No meeting this month. Next meeting will be in September.

Pittsburgh: No meeting this month.

Washington, D. C.: No meeting this month. Next meeting will be held September 29.

Southern

Bluegrass: No meeting this month.

Dixie: No meeting this month.

Florida: No meeting this month.

U. S. Processed Food Foreign Trade Continues Good

U.S. export-import trade in processed foods (including all sugar, all cocoa and all coffee products) amounted to nearly 17 billion lbs. in the fiscal year ending July 1, 1960. Exports totaled 2.4 billion lbs., and imports were a little less than 14.5 billions.

These figures do not suggest that this country has had a difficult time developing a satisfactory policy on world trade. The fact is, however, that we, and others, do a good deal of pulling and hauling in the matter, and since the programs have been up for review this summer, it will pay us to take a look at the situation.

Canned Food Exports Are Important

According to U.S. Dept. of Commerce, the United States exports more than twice as much canned food as it imports. In 1959-60 the figures were 1,047 million lbs. exported, 495 imported, divided as follows (millions of lbs., excluding U.S.-owned shipments of pineapple products from the Philippines):

Products	Export	Import	Products	Export	Import
Dairy	137	...	Meat	9	232
Fruit	370	108	Juices	317	38
Vegetables	184	117	Baby food	30	...

Frozen food exports and imports are relatively small, although important to certain industry segments. We shipped out 11 million lbs. of fruits, 44 million lbs. of citrus concentrates and 26 million lbs. of vegetables, while we brought in 26 million lbs. of berries, in 1959-60.

Glassed food shipments, including foods in other containers commonly sold in glass in this country, were reported as follows in 1959-60 (million of lbs.):

Products	Export	Import	Products	Export	Import
Syrups	2	...	Vinegar	6	...
Salad dress.	7	...	Sauces	5	7
Pickles	11	12	Inst. coffee	7	5
Olives, gr.	2	15	Preserves	2	8
Honey	12	8	Flav. extracts	...	1
Olive oil	...	55	TOTALS	54	111

The biggest export movement, and by all odds the heaviest import activity, is found in the field of dry foods. In 1959-60 the quantities shipped and received were as follows, in millions of lbs.:

Products	Export	Import	Products	Export	Import
Dairy	252	2	Fruits	181	55
Nuts	98	240	Vegetables	614	21
Spices, etc.	10	136	Prep. cereal	38	1
Macaroni, etc.	7	9	Flour mix	4	...
Cocoa, etc.	...	664	Coffee	16	3,005
Tea	...	116	Pet foods*	...	17
Ed. gelatin	...	8	Fruit peels	...	4
Sugar	...	9,550	TOTALS	1,220	13,828

* Includes canned pet foods.

If we look at the above figures, we see that some of our imports are made because we can't produce the foods ourselves—examples being cocoa, tea, coffee.

Similarly, some of our exports occur because we put up packs not made in the country of destination—baby foods, prepared flour mixes, breakfast cereals.

A second trade group includes items where there exists a long practice of supplementing domestic production with that from outside. U.S. imports of this type include sugar, canned meats, olive products, dates, nuts and spices.

Finally, there is a third group, in which the imported foods compete directly with domestic packs. It is these foods—both in the United States and in other lands to which we make shipments—that make it difficult to evolve a permanent program.

National Policies Are Varied

Nations may wish to push exports to find a needed outlet for domestic packs. Australia long subsidized canned fruits in export trade, and we have both sold surplus food at below cost and have given it away.

Nations encourage imports from one area and not from another. Great Britain favors British Commonwealth nations, and we like to buy our sugar from friendly countries.

Imports may be discouraged to protect infant industries. We do little of this now, but there was a time when it was part of our foreign policy.

Finally, barriers to imports may be erected because the prices of the imported products are so low as to be ruinous to the competing domestic industry.

Two side-by-side problems in processed fruits show how difficult it is for the United States to set up one policy to apply to all.

U.S. fruit canners in Florida, Washington, Oregon and California have been urging the U.S. State Dept. to try to knock down barriers which exist against American canned fruits in overseas markets. Dollar shortages no longer exist among the importers, and we want to see high tariffs and low quotas on U.S. fruits removed.

At the same time, U.S. strawberry freezers view with distress a jump in importation of Mexican strawberries, from 14 million lbs. in 1959 to nearly 25 millions in 1960. Here we want duties increased, quality requirements raised, and an import quota established.

How We Meet the Problem

In general, our national policy has been reasonably satisfactory in recent years, in view of these conflicts of interests.

We have generally stood for reciprocal lowering of trade barriers, thus encouraging commerce and making for international prosperity and good will.

At the same time, we have not abandoned all of our tariffs, but have maintained some where low-priced labor has made competition impossible, or where the other party has been unwilling to cooperate.

And we have tried to be flexible, meeting goodwill with goodwill, making a concession to gain one, giving added protection when foreign prices drop too low.

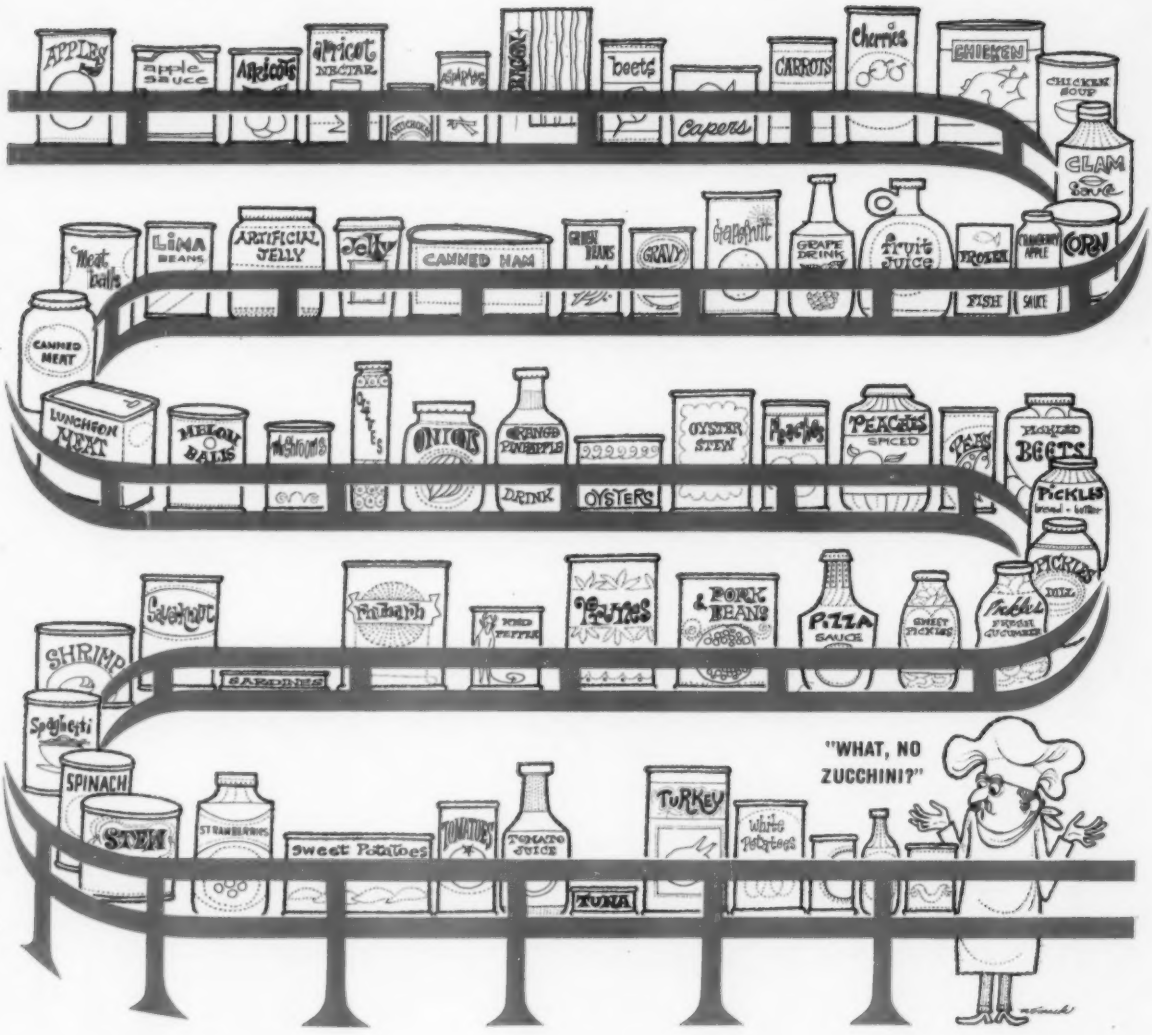
Future Outlook

In the years to come, it seems to me, we have to continue doing pretty much what we do now.

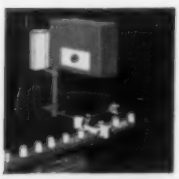
This will not be adequate for all of our domestic packers, nor will it satisfy all of our good neighbors.

But, like all sound compromises, it will generally keep the show on the road.

El Stark
Editor



NEW MORTON FLOCRON DISPENSER CUTS CANNING COSTS FOR 63 PRODUCTS!

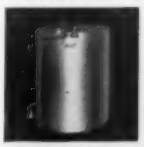


No splash . . . no spill . . . no overfill! Companies who use Morton's amazing Flocron liquid dispenser system to handle any of the 63 different food products listed above report that Flocron avoids the waste inherent in "overflow fill" systems, stops splash loss, and dispenses more than 40 different ingredients with money-saving speed and accuracy.

The versatile Flocron is actually a precise electronic system with photoelectric circuits in a sealed unit and a new lever-type photo switch to activate dispensing. It assures accuracy, even on lines handling up to 300 units per minute! Remote electronic controls permit you to "dial" the exact amount of liquid required for varying can sizes.

Designed for efficient, low cost operation. The Flocron is made of stainless steel and plastic and is constructed to avoid corrosion and lengthy breakdowns that result in costly downtime. There are no valves to stick or clog, and the Flocron is easily cleaned by circulating a detergent solution through the fluid system and following this with a sanitizer. No need to revise production lines. The Flocron can be operated with existing equipment. Scientific Dispensing Company technicians in all areas will assist with installation and servicing.

Some of the liquids you can dispense with the Flocron are: ascorbic acid, beef gravy, brine, concentrated syrup, hot butter, Monosodium Glutamate, spice oils, sugar and brine, tomato puree and vinegar.



MORTON ALSO OFFERS CORROSION-FREE BRINEMAKERS

In addition to the Flocron liquid dispenser, Morton also offers a complete range of Brinemakers, capable of producing up to 800 gals. of saturated pure brine per hour. With the Morton Brinemaker, salt is handled only once at the Brinemaker location from where it may flow or be pumped to the Flocron or other usage points. No space-wasting storage tank needed; no need for costly shut downs for cleaning out impurities.

SCIENTIFIC DISPENSING COMPANY / DIVISION OF

MORTON SALT COMPANY

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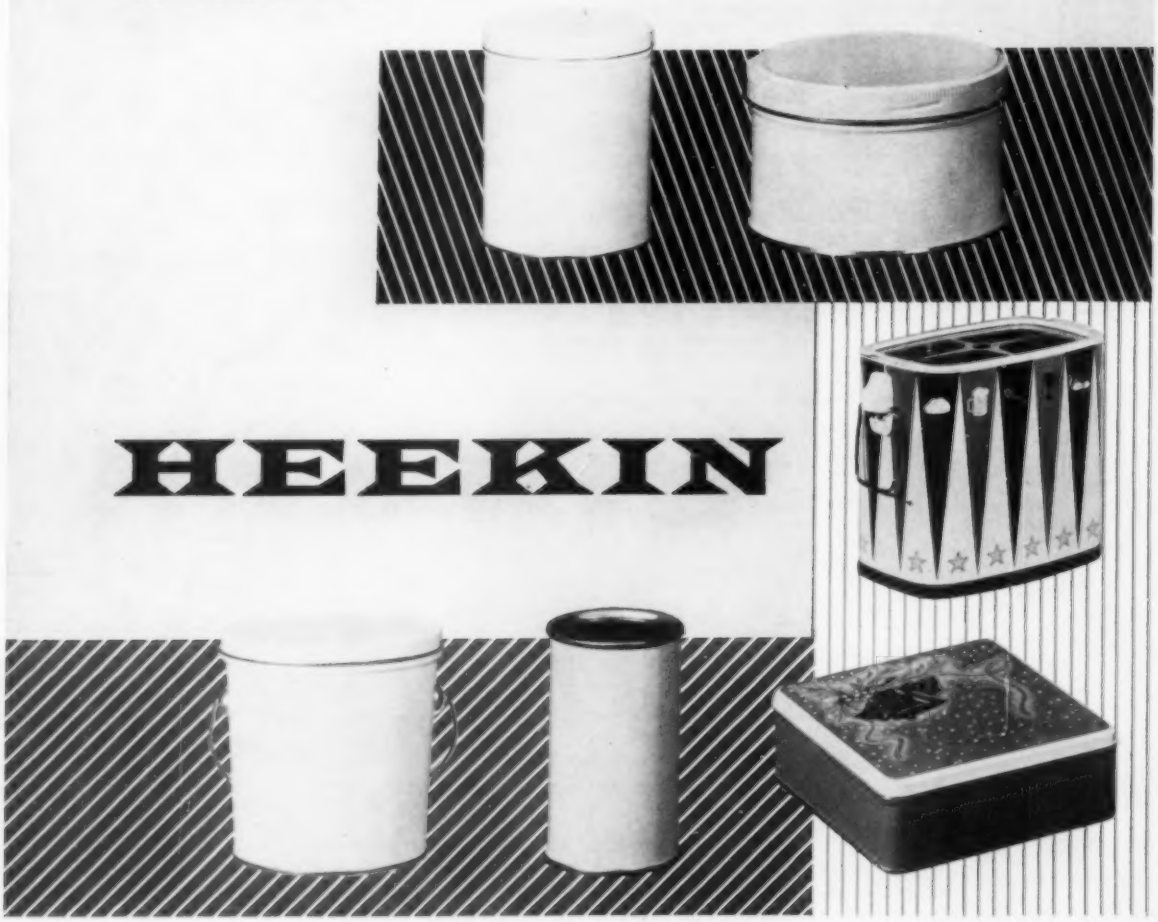

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